

4.4 Cultural and Paleontological Resources

4.4.1 Introduction

Section 4.4, Cultural and Paleontological Resources, addresses the impacts that land use changes related to the 201 Haskins Way Project (project) would have on historic architectural resources, archaeological resources, tribal cultural resources, and paleontological resources. All of these cultural resources subtopics are considered in the discussions of existing conditions, baseline plus project conditions, and cumulative conditions. The section describes existing cultural resources on the project site and in the study area, and presents the baseline conditions against which project impacts are measured. Project-specific impacts are presented for the proposed project and mitigation measures are identified. A cumulative impact discussion is presented for each subtopic.

4.4.2 Environmental Setting

STUDY AREA

The City of South San Francisco's climate is characterized by mild, dry summers and cool, moist winters. Because the area falls within a coastal region, winters are typically warmer, and summers tend to be milder. Being on the seaward side of the Coast Ranges, the project area gets more rain than San Leandro or Hayward to the east.¹ When California was first occupied, the climate was moister and cooler than today's Mediterranean climate.² Annual temperatures average 57.4 degrees Fahrenheit. Precipitation ranges between 10 and 50 inches.³

Current land uses in the project vicinity include aviation, commercial, and industrial development, and protected natural areas. Plant communities within and adjacent to the area include coastal and valley freshwater marsh, eucalyptus woodland, northern coastal scrub, nonnative grassland/ruderal, and willow riparian scrub. Ruderal vegetation is usually found in disturbed areas that have been significantly altered by construction, landscaping, or other types of land-clearing activities. Plant species found within this habitat are typically introduced Mediterranean species that exhibit clinging seeds, adhesive stems, and rough leaves that assist their invasion and colonization of disturbed lands. Prior to landscape and vegetation modifications during the historic period, the predominant potential natural plant communities would likely have included interior live oak, mixed chaparral, bluegrass, and valley needlegrass series.⁴ Historically, land mammals in the area included mule deer, pronghorn, tule elk, coyotes, bobcats, ground squirrels, and kangaroo rats. A variety of birds were known to inhabit the area, including hawks, eagles, owls, quail, mourning doves, mockingbirds, scrub jays, gulls, herons, crows, finches, and sparrows. The proximity of the Pacific Ocean would have provided prehistoric peoples with access to sea lions, seals,

¹ Gilliam, Harold, 2002. *Weather of San Francisco Bay Region*. Berkeley: University of California Press. p. 65.

² Major, J., 1988. California Climate in Relation to Vegetation. In *Terrestrial Vegetation of California*, edited by M. Barbour and J. Major, pp. 11–74. Special Publication No. 9. Sacramento: California Native Plant Society.

³ Bailey, Robert G., 1995. Description of the Ecoregions of the United States. 2d ed. U.S. Department of Agriculture, Forest Service, Miscellaneous Publication Number 1391. p. 50.

⁴ Ibid.

mussels, abalone, and fish, etc. With this mosaic of ecological communities, the area would have provided a very productive environment for its prehistoric occupants, one well suited to a hunting-gathering economy with a variety of birds, small and large mammals, fish, reptiles, amphibians, and edible plant species.

REGIONAL CONTEXT

Prehistoric

The project site lies in what generally is described as the San Francisco Bay Region, which is one of eight arbitrary organizational divisions of the state.⁵ This archaeological region includes all of today's San Mateo and Marin Counties, and western, northern, or southern portions of Alameda, Contra Costa, Napa, Santa Clara, Santa Cruz, Solano, and Sonoma Counties bordering the Bay Area.⁶ The prehistory of this region is divided into six periods: Early Holocene (Lower Archaic, cal 8000–3500 B.C.), Early period (Middle Archaic, 3500 to 500 cal B.C.), Lower Middle period (Initial Upper Archaic, 500 cal B.C. to cal A.D. 430), Upper Middle period (Late Upper Archaic, cal A.D. 430 to 1050), Initial Late Period (Lower Emergent, cal A.D. 1050 to 1550), and Terminal Late Period (cal A.D. 1550 to 1776).⁷ The San Francisco Bay area is “the meeting ground of two different systems for organizing the archaeological record”⁸; therefore, the discussions in this section refer to a variety of period names.

Early Holocene/Lower Archaic (cal 8000–3500 B.C.)

Occupation in the San Francisco Bay area during the Prehistoric Period may have occurred as early as 8,000 years ago, when sea levels were some 15–20 meters lower than today,⁹ but the earliest archaeological sites in this area date to only 6,000 years ago during the middle Holocene. It is likely that Holocene alluvial deposits buried many prehistoric sites in this area.¹⁰ To the east in the Los Vaqueros region of Contra Costa County, closer to the Sacramento–San Joaquin Delta, for example, is one of the few early Holocene age sites in the region, CA-CCO-696. This site provides one of the earliest dates from a site with a millingstone component.¹¹ To the south at an inland site in Santa Cruz County (Scotts Valley site, CA-SCR-177), stone tools have been found in deposits dating to more than 6,000 years ago.¹² Data

⁵ Moratto, Michael. 1984. *California Archaeology*. New York: Academic Press.

⁶ Ibid.

⁷ Milliken, Randall, Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Leventhal, Randy S. Wiberg, Andrew Gottsfield, Donna Gillette, Viviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson

2007. Punctuated Culture Change in the San Francisco Bay Area. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar. Altamira Press, Lanham, New York, Toronto. pp. 101, 114–118.

⁸ Milliken, op. cit.

⁹ Bickel, P. M. 1978. Changing Sea Levels along the California Coast: Anthropological Implications. *Journal of California Anthropology* 5:6–20. p. 7.

¹⁰ Ragir, Sonia. 1972. *The Early Horizon in Central California Prehistory*. Contributions of the University of California Archaeological Research Facility, No. 15. Berkeley. Moratto, op. cit., pp. 221, 277.

¹¹ Milliken et al., op. cit., p. 114.

¹² Breschini, Gary S., and Trudy Haversat. 1991. Early Holocene Occupation of the Central California Coast. In *Hunter-Gatherers of Early Holocene Coastal California*, edited by J. M. Erlandson and R. H. Colten, pp. 125–132. Perspectives in California Archaeology, Vol. 1. Institute of Archaeology, University of California, Los Angeles. pp. 128–129.

from coastal sites in central and southern California during the Paleo-Coastal Tradition of the Paleoindian Period indicate the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas.¹³ The few Bay Area sites include two in the Santa Clara Valley (CA-SCL-65 and CA-SCL-178) and one on the peninsula coast of Santa Cruz County (CA-SCR-7).¹⁴ The artifact assemblages in these Bay Area sites have large numbers of handstones and milling slabs, as well as core and flake tools. Dates from CA-SCR-7, the Sand Hill Bluff shell mound, range from 4100–1400 B.C., and the mound includes large corner and side-notched projectile points. There is abundant evidence that marine resources such as fish, sea mammals, and shellfish were exploited at coastal sites.

Early Period/Middle Archaic (3500–500 cal B.C.)

Sites characteristic of the Early period/Middle Archaic in the San Mateo County area date to as early as 5,500 years ago and as late as 2,500 years ago (3500–500 cal B.C.). Such sites often contain manos and metates (grinding stones), as well as many mortar fragments, indicating that acorns and/or various seeds formed an important part of the diet.¹⁵ The period is marked by the first cut bead, the grooved *Olivella biplicata* rectangle bead. Mortars and pestles appear in the Bay Area archaeological record during this time period. A wooden mortar and stone pestle were recovered from CA-CCO-637; these artifacts dated to 3800 cal B.C.¹⁶

The University Village site (CA-SMA-77) in San Mateo County and the lower levels of the West Berkeley site (CA-ALA-307) in Alameda County may represent an Early Bay culture contemporaneous with the Windmill Pattern, from a little further south down the California coast¹⁷. The lowest level of the West Berkeley site has recently been radiocarbon dated to 3030–2890 cal B.C.¹⁸ It has been suggested that the Early Bay culture had more in common with southern California coastal cultures rather than the Windmill Pattern diagnostic of the Early Horizon in the Delta area.¹⁹ Additional artifact assemblages, such as from CA-SCL-354 in the Los Altos foothills, imply that characteristics of Windmill artifact assemblages were present on the South Bay peninsula.²⁰ Also on the peninsula coast, *Olivella* rectangular

¹³ For example, Jones, Terry L., Richard T. Fitzgerald, Douglas J. Kennett, Charles Miksicek, John L. Fagan, John Sharp, and Jon M. Erlandson. 2002. The Cross Creek Site and Its Implications for New World Colonization. *American Antiquity* 67:213–230.

¹⁴ Hylkema, Mark B. 2002. Tidal Marsh, Oak Woodlands, and Cultural Florescence in the Southern San Francisco Bay Region. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by Jon M. Erlandson and Terry L. Jones, pp.233–262. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles. pp. 233–235.

¹⁵ Moratto, op. cit., p. 201.

¹⁶ Milliken et al., op. cit., p. 115.

¹⁷ Gerow, Bert A. (with Roland W. Force). 1968. *An Analysis of the University Village Complex, with a Reappraisal of Central California Archaeology*. Stanford University Press, Palo Alto, California.

¹⁸ See Lightfoot, Kent G., and Edward M. Luby. 2002. Late Holocene in the San Francisco Bay Area: Temporal Trends in the Use and Abandonment of Shell Mounds in the East Bay. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by Jon M. Erlandson and Terry L. Jones, pp.263–281. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles. p. 270.

¹⁹ Gerow, Bert A. 1974. Co-traditions and Convergent Trends in Prehistoric California. *San Luis Obispo County Archaeological Society Occasional Paper* 8.

²⁰ Hylkema, op. cit., p. 244.

beads (type L1) and Rossi square-stemmed and large side-notched projectile points are diagnostic of the Early Period.²¹

Lower Middle Period/Initial Upper Archaic (500 cal B.C.–cal A.D. 430)

People inhabiting the San Francisco Bay region during the Lower Middle period (also known as Berkeley period) practiced a maritime hunting and gathering economy. Large accumulations of shellfish remains, or “shell mounds,” formed over hundreds, or even thousands, of years through accretion at village sites fronting the Bay that were reused seasonally or year-round.²² Numerous shell mounds contain hundreds of burials as well as ceremonial items, house floors, hearths, and storage pits, indicating they were used as burial, ceremonial, and residential places.²³

The well-known Emeryville shell mound (CA-ALA-309) and Ellis Landing site (CA-CCO-295) date to this period.²⁴ In 1902, the Emeryville shell mound (CA-ALA-309) was initially excavated, revealing a stratified deposit with numerous cultural sequences.²⁵ The Emeryville shell mound was one of the largest in the Bay Area, with an estimated size of at least 100 by 300 meters and a maximum depth of nearly 10 meters.²⁶ The lower levels contained flexed burials associated with artifacts such as pointed bone implements, chert bifaces (stone tool flaked on both sides), perforated charmstones, red ochre, and a predominance of bay oyster shells.²⁷ Upper levels appeared to have cremation burials, polished stone artifacts, flaked obsidian tools, and more clam shell than oyster shell. In 1924, approximately 700 burials were discovered, most interred in a flexed (fetal) position, when materials from the site were “rescued” as it was being leveled during construction of a paint factory.²⁸

Artifacts typical of the Lower Middle period include spire-lopped Olivella, Olivella saucer beads, and circular Haliotis ornaments.²⁹ Assemblages generally have a relatively small frequency of flaked stone points; projectile points are commonly contracting stemmed (smaller at the base) and lanceolate (leaf-like) types, some of which are made from obsidian.³⁰ Burials are variable flexed and semiflexed with inconsistent orientation.

²¹ Ibid., p. 250.

²² Lightfoot, Kent G., 1997. Cultural Construction of Coastal Landscapes: A Middle Holocene Perspective from San Francisco Bay. In *Archaeology of the California Coast During the Middle Holocene*, edited by Jon M. Erlandson and Michael A. Glassow, pp. 129-141. Perspectives in California Archaeology, Vol. 4. Institute of Archaeology, University of California, Los Angeles. p. 135.

²³ Lightfoot, op. cit., 131–136. Luby and Lightfoot, op. cit., pp. 276–277.

²⁴ See discussion in Lightfoot and Luby, op. cit., p. 270. Nelson, N. C., 1909. *Shellmounds of the San Francisco Bay Region*. University of California Publications in American Archaeology and Ethnology Vol. 7, No. 4. Berkeley.

²⁵ Uhle, Max, 1907. The Emeryville Shellmound. *University of California Publications in American Archaeology and Ethnology* Vol. 7, No. 1. Berkeley.

²⁶ Moratto, op. cit., pp. 227–228.

²⁷ Ibid., p. 229.

²⁸ Schenck, W. Egbert., 1926. The Emeryville Shellmound: Final Report. *University of California Publications in American Archaeology and Ethnology* Vol. 23, No. 3. Berkeley.

²⁹ Milliken, op. cit., p. 115.

³⁰ Hylkema, op. cit.

Milling implements include large and small boulder or cobble mortars and various types of pestles, indicating that acorns formed an important part of the diet. In the South Bay, processing of hard seeds continued to be important throughout this period, as evidenced by the number of milling slabs and handstones in the artifact assemblages from that area.³¹ Other plant resources included hazelnuts, cattail seeds, grass, and soaproot bulbs; the latter were roasted in earth ovens.

Shellfish species exploited varied depending on location within the Bay Area.³² Along the West Bay in San Mateo County and the East Bay of Alameda County, bay mussel, oyster, and clam are more prevalent. In contrast, horn snail, oyster, and bay mussel are the principal shellfish recovered from South Bay mounds. Temporal variation in shellfish species (changes in the types exploited over time) is also present in the mound assemblages.

Upper Middle Period/Late Upper Archaic (cal A.D. 430–1050)

The Upper Middle Period/Late Upper Archaic period is marked by the collapse of the Olivella saucer bead trade network at cal A.D. 430 around the Bay Region.³³ The period is also evidenced by a number of changes in subsistence, foraging, and land use patterns that begin to reflect the use pattern known from Historic Period Native American groups in the area. A substantial increase in the intensity of subsistence exploitation, including fishing, hunting, and gathering (particularly the acorn), evidenced in the archaeological record, correlates directly with population growth.³⁴ Bow and arrow technology, the use of harpoons, and tubular tobacco pipes appear during this period. However, a greater emphasis is placed on the procurement and processing of vegetal foods, especially acorns, as evidenced in the increase of milling tools, especially the mortar and pestle. Both coiled and twined basketry were used as domestic and ceremonial items. Population size and the number of settlements increased during this period, although the large shell mound villages of the Lower Middle Period were apparently no longer favored residential places.³⁵ There is an increase in grave goods, particularly during the Upper Middle period, compared to few grave goods identified during the Lower Middle period in Bay Area sites.

During the Upper Middle period, the climate fluctuated between cooler, wetter periods and warmer, drier periods. During cooler, wetter periods, alluvial deposition increased; comparatively little deposition occurred in the drier intervals. Extended periods of relatively little rainfall, referred to as the Medieval Climatic Anomaly (MCA), produced droughts across the West between about A.D. 650–850 and again in the Late period A.D. 1150–1250.³⁶ The dry conditions during the MCA may be related to the abandonment of shell mound villages as primary residential locations, which began around A.D. 700.³⁷ Settlement strategies were apparently reorganized and focused on a dispersed pattern, with the

³¹ Hylkema, op. cit., pp. 244–245, 252.

³² Ibid., p. 252.

³³ Milliken, et al, op. cit., p. 116.

³⁴ Moratto, op. cit., pp. 211–214.

³⁵ Lightfoot and Luby, op. cit., pp. 264, 277.

³⁶ Jones, Terry L., G. M. Brown, L. Mark Raab, J. Vickar, W. G. Spalding, Douglas J. Kennett, Andrew York, and Phillip Walker. 1999. Environmental Imperatives Reconsidered: Demographic Crises in Western North America During the Medieval Climatic Anomaly. *Current Anthropology* 40:137–156.

³⁷ Lightfoot and Luby, op. cit., pp. 277, 279.

establishment of both coastal and interior habitation areas, coinciding with the exploitation of seasonally available resources.

Initial Late Period/Lower Emergent (cal A.D. 1050–1550)

The Late period ushers in a time of status differentiation and the rise of secret societies and cults and associated traits. Exchange networks, with the use of clamshell disk beads as a form of currency, expanded during this period. Exchange items included magnesite, steatite (talc), Olivella beads, and obsidian. Compared to the Middle Period, the use and occurrence of shell beads with burials blossomed.³⁸ Haliotis banjo pendants may represent the introduction and spread of the Kuksu cult (an indigenous religion), beginning during the transition from the Middle to Late Period in the Bay Area.³⁹ The magnitude of non-dietary Olivella shells in coastal sites during the Late Period, coupled with a concomitant increase of the shells in mortuary contexts throughout central California during this period, attests to the rise of both exchange networks and status differentiation, with coastal peoples supplying the shells to the interior groups. Partial cremation appears or reappears during this time and also marks the stratification with the diversity of grave goods included in the wealthiest of graves.⁴⁰

During the Late Period in the peninsula coast, site assemblages indicate there is an increase in the diet of birds and marine species, especially sea otters. At the same time, there is a decrease in terrestrial fauna in the archaeological record.⁴¹ Further inland at large residential, upland meadows sites in Santa Cruz County (CA-SCR-9 and CA-SCR-20), both dense shell and abundant deer and elk bone are present, suggesting these areas were continuously reoccupied on a seasonal basis.

Terminal Late Period/Protohistoric Ambiguities (cal A.D. 1550–1776)

The Terminal Late period is marked by the abrupt disappearance of the Olivella sequin and cup beads circa ca A.D. 1500–1550.⁴² During this period and before the Spanish arrived in full force, a cultural shift was occurring. The North Bay began to take a more dominant role in the production of new technology and trade items, including clamshell disk beads, the toggle harpoon, hopper mortar (a mortar that has a bottomless basket attached), corner-notched projectile points, and magnesite tube beads. The precise reason for this cultural shift is unknown, but could have been driven by conflict between groups or the spread of European diseases northward from Mexico prior to 1776.⁴³

³⁸ Milliken, Randolph T., and James A. Bennyhoff, 1993. Temporal Changes in Beads as Prehistoric California Grave Goods. In *There Grows a Green Tree: Papers in Honor of David A. Fredrickson*, edited by Gregory White, Pat Mikkelsen, William R. Hildebrandt, and Mark E. Basgall, pp. 381–395. Center for Archaeological Research at Davis, Publication 11. University of California, Davis.

³⁹ Hylkema, op. cit., p. 260.

⁴⁰ Milliken 1993, op. cit., p. 217.

⁴¹ Hylkema, op. cit., pp. 254–255.

⁴² Milliken 1993, op. cit., p. 117.

⁴³ Ibid., pp. 117–118.

Ethnographic Overview

The project is in an area historically occupied by the tribelets of the Costanoan linguistic group.⁴⁴ Descendants of Costanoan speakers prefer to be called by the name of the tribelet from which they are descended. When their heritage is mixed or the specifics have been lost over generations, they prefer the use of a native term, *Ohlone*, rather than the European-imposed term Costanoan (“coastal dwellers”).⁴⁵

Costanoan territory extended between the Carquinez Strait and San Pablo Bay on the north, southward along the coast beyond Monterey Bay to Carmel Valley, and inland to the coast range.⁴⁶ Neighboring groups included the Coast Miwok north across the Carquinez Strait, the Miwok and Northern Valley Yokuts to the east, and the Salinan and Esselen to the south.

Spanish mission records, diaries, and journals provide most of the information about the Costanoans, because little ethnographical research has been conducted in the twentieth century.⁴⁷ The most thorough study, by Milliken in 1995⁴⁸, used mission records, and Margolin in 1978⁴⁹ reconstructed Native American life in the Bay Area.

The numerous Costanoan social groups in this region were organized by tribelets, each of which could have several villages or a main village with a number of camps.⁵⁰ Tribelets were also political units that were structured by similarities in language and ethnicity, each holding claim to a designated portion of territory. Topographic features, such as rivers, watersheds, and ridgelines, defined tribelet territories, and the boundaries were strictly respected.

Linguistically, these tribelets belong to the Utian, or Miwok-Costanoan, language family, part of a hypothesized larger Penutian linguistic stock.⁵¹ The Costanoan family is broken down into four branches: the Karkin, in the Carquinez Strait area; the Northern Costanoan, consisting of the Chochenyo (with four dialects), Ramaytush, Tamyen, and Awaswas languages; the Soledad, seen only in Cholon; and the Southern Costanoan branch, consisting of Rumsen and Mutsun.⁵² Speakers of these languages and dialects, in various configurations, have been treated as tribes in the past in accordance with anecdotal reports. Through detailed examination of mission records, marriage patterns, and dialect variation seen in

⁴⁴ Levy, Richard, 1978. Costanoan. In *California*, edited by R. F. Heizer, pp.485–495. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

⁴⁵ Margolin, Malcolm, 1978. *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area*. San Francisco: Heyday Books.

⁴⁶ Levy, op. cit., p. 485.

⁴⁷ Ibid., p. 495.

⁴⁸ Milliken, Randall, 1995. *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769–1810*. Ballena Press Anthropological Papers, No. 43. Menlo Park, Calif.: Ballena Press.

⁴⁹ Margolin, Malcolm, 1978. *The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area*. San Francisco: Heyday Books.

⁵⁰ Levy, op. cit., p. 487.

⁵¹ Mithun, Marianne, 2001. *The Languages of Native North America*. Reprinted 2001. New York: Cambridge University Press. p. 309.

⁵² Ibid., L535.

personal names, Milliken⁵³ delineated 43 separate political entities (tribelets) in the San Francisco Bay, Santa Cruz, and inland area, with an additional six or so tribelets in the south Monterey Bay and Carmel Valley region.

Each tribelet's territory contained a main village and smaller satellite villages. The villages were typically situated along a river or stream for easy access to water.⁵⁴ Coastal people did not build right on the shoreline but usually on an overlooking bluff. Dwellings were domed structures consisting of a tule- or grass-covered framework of poles, with rectangular doorways and central hearths.⁵⁵ Villages often contained specific enclosures for dancing. Assembly halls in the center of the settlement were common; some halls were large enough to contain the entire village population of 200 people. Each community had a sweat lodge, placed near a stream. The Costanoans either buried or cremated the deceased, sometimes depending on firewood availability. There is no mention of cemeteries associated with villages.⁵⁶

The rich resources of the ocean, bays, valleys, and mountains provided Ohlone-speaking peoples with food and all their material needs.⁵⁷ The primary food staple was the acorn, supplemented by a great variety of animal and plant resources. Depending on species availability and desirability, Costanoans used four oak species: coast live, valley, tanbark, and black. Collected nuts included buckeye, laurel, pine nuts, and hazelnuts. Seeds from dock, chia and other salvias, tarweed, and holly-leaf cherry were collected and ground into meal. Vegetal resources also included several berry-producing plants, wild onions, carrots, tule roots, and greens of clover and other annuals. Large and small game, including deer, elk, antelope, bears, mountain lions, raccoons, ground squirrels, woodrats, mice, moles, dogs, rabbits, and jackrabbits, plus seals and stranded whales, were part of their diet. Migrating waterfowl were an important resource, and included geese, ducks, and coots. Pigeons, quails, and hawks were also consumed but not eagles, owls, ravens, or turkey vultures. Rivers and streams provided freshwater fish, including steelhead, salmon, and sturgeon, while the ocean provided sharks, sardines, and lampreys. Costanoan diet also included a variety of insects and reptiles but not amphibians.

For hunting and gathering natural resources, Costanoans used a wide array of tools, implements, and enclosures. Among those used for hunting land mammals and birds were bows and arrows, traps and snares, deer-head disguises, bolas, nets and net sinkers, and enclosures/blinds. Communal hunting drives were used to catch rabbits, whereas nets and poisons were used to harvest fish. Tule watercraft were used for transportation and for hunting fish and waterfowl on enclosed bays and marshes. Many plants were collected using wooden tools: long poles for dislodging acorns and pinecones, fire-hardened digging sticks for obtaining roots, and beaters for dislodging seeds. Once collected, seeds, roots, and nuts were placed in burden baskets and transported for processing or storage.⁵⁸

⁵³ Milliken 1995, op.cit., p. 229.

⁵⁴ Levy, op. cit., p. 487.

⁵⁵ Levy, op. cit., p. 492.

⁵⁶ Ibid., pp. 490-491.

⁵⁷ Ibid., pp. 491-492.

⁵⁸ Ibid., p. 491.

Costanoans used a variety of tools to process food resources. These tools included portable stone mortars and pestles, bedrock mortars, hopper mortars, anvils, woven strainers and winnowers, leaching and boiling baskets, woven drying trays, and knives. Various foods were baked in earthen ovens. Wooden paddles were carved for stirring food in the boiling baskets. There were shell spoons, basket dippers, and mush bowls for serving food, and woven water jugs and storage containers for storing food.

The presence of exotic items such as obsidian, steatite, and shell indicates Costanoan tribelets traded with coastal groups and mountain tribes.⁵⁹ Dietary items were also traded with the Plains Miwok, Sierra Miwok, and Yokuts. Costanoans provided mussels, abalone shells, dried abalone, and salt to the Yokuts and Olivella shells to the Miwok. They received pine nuts from the Yokuts, but other food resources received by the Costanoan tribelets are unrecorded.

The Native American population in this region came into contact with European culture at the beginning of Spain's land exploration and settlement in A.D. 1769. Traditional lifeways were altered drastically during the late 1700s to early 1800s when the Spanish placed their capital at Monterey, built forts at Monterey and San Francisco, and established seven Franciscan missions to convert native peoples to Christianity and the European way of life. Large-scale epidemics soon swept through the mission population and remaining villages.⁶⁰ Subsequent Spanish colonial towns at Santa Cruz and Yerba Buena (San Francisco), followed by large Mexican land grants, separated Costanoans from their harvesting grounds and hunting parks. Many surviving Native Americans were pulled away from their own villages to the new Euro-American settlements. It is estimated that the combined Costanoan population fell from a pre-Contact total of 10,000 down to 2,000 by the end of the mission period in 1834.⁶¹ Also during the mission period, the dwindling Costanoan population intermarried within other interior tribes at the missions, mixing their cultural identities.

During the late 1800s, several Native American communities of mixed heritage remained in rural areas, with Pleasanton, Monterey, and San Juan Bautista the best known.⁶² Even these groups continued to shrink as young people married into other groups and moved away. Estimates of the total remaining population of people with recognizable Costanoan descent were fewer than 300 in 1973.⁶³ According to Levy:

In 1971 descendants of the Costanoan united in a corporate entity, the Ohlone Indian Tribe, and received title to the Ohlone Indian Cemetery where their ancestors who died at Mission San José are buried.⁶⁴

Since that time, other descendants of Costanoan tribelets have organized political and cultural heritage organizations that are active locally and statewide. All are concerned with revitalizing aspects of their culture, learning the language through notes collected by anthropologist John Harrington, and preserving the natural resources that played a vital role in traditional culture. Some Costanoan groups also are

⁵⁹ Ibid., p. 493.

⁶⁰ Milliken 1995, op. cit.

⁶¹ Levy, op. cit., p. 486.

⁶² Ibid., p. 487.

⁶³ Ibid.

⁶⁴ Ibid.

seeking federal recognition of their tribe, petitioning the Bureau of Indian Affairs with reconstructed tribal histories and genealogies, records that will be a great resource for future generations of Costanoans.

Historic Context

Post-Contact history for the state of California generally is divided into three periods: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Although there were brief visits by Spanish, Russian, and British explorers from 1529 to 1769, the beginning of Spanish settlement in California occurred in 1769 with a settlement at San Diego and the first (Mission San Diego de Alcalá) of 21 missions established from 1769 to 1823. Word of Mexican victory after a decade of revolt against the Spanish crown reached California in 1822, marking the beginning of the Mexican period. This period was marked by an extensive era of land grants, most of which were in the interior of the state, and by exploration by American fur trappers west of the Sierra Nevada Mountains.

With the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, California became a territory of the United States. The discovery of gold in 1848 at Sutter's Mill near Sacramento and the resulting Gold Rush influenced the history of the state and the nation. The rush of tens of thousands of people to the goldfields also had a devastating impact on the lives of indigenous Californians, with the introduction and concentration of diseases, the loss of land and territory (including traditional hunting and gathering locales), violence, malnutrition, and starvation. Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869.

With continued growth, California continues to be a national leader in agriculture and poultry production, ranching (cattle and sheep), and aerospace and communications industries, as well as the film and entertainment business. The wealth of California's natural resources (e.g., lumber, petroleum deposits, minerals, and fish) also continues to contribute to its growth and development.

South San Francisco

South San Francisco, like San Francisco proper, existed under the governments of Spain, Mexico, and the United States, respectively. The area near the San Bruno Mountains was a region of valleys and slopes with good soil and grasses, known by the indigenous Costanoan as Buriburi, Urebure, or Buri Buri.⁶⁵ Due to the poor environment of the upper peninsula, with heavy fogs and sand dunes, cattle and crops quickly spread southward into the area to be known as Rancho Buri Buri.

Under the Spanish regime the area was under constant dispute between Mission Dolores and the Presidio, primarily in regard to land for cattle grazing. Originally, the Presidio and Mission shared pasture and grazing lands of Rancho del Rey in the hills around the Presidio, but due to protests from the mission padres, the Presidio herds were removed.⁶⁶ In 1797, however, Governor Diego de Borica, no longer

⁶⁵ Bancroft, Hubert Howe, 1886. *History of California*. The History Co., San Francisco.

⁶⁶ Stanger, Frank M. 1963. A California Rancho Under Three Flags: A History of Rancho Buri Buri in San Mateo County. *California Historical Society Quarterly* 17(3):245-259

wishing that the soldiers of the Presidio be dependent upon Mission Dolores, re-established Rancho del Rey, this time in the area of Buri Buri. The Mission protested, but after an investigation by the Comandante of the Presidio, the mission cattle that were present in the area were removed and a government herd took their place.⁶⁷ These herds stayed there for just under two decades, until a land use and herd trade between the Mission and Presidio occurred in 1915 where the Mission was allowed the use of Buri Buri in exchange for Las Pulgas and this continued until the end of Spanish control of California in 1822.

During the Mexican period (1822–1848), the Mexican government gave out large land grants to its supporters in Alta California (now California). One such supporter was Señor Don Jose Antonio Sanchez, who was granted the 14,639-acre Rancho Buri Buri in 1835. This land grant encompassed an area that was bounded on the north by the San Bruno Mountains, Canada San Andreas to the west, the San Francisco Bay on the east, and the area currently designated as Burlingame.⁶⁸ The property stayed as Rancho Buri Buri until California came under control of the United States, and in 1852 it was split between the heirs of Jose Antonio Sanchez. One of his sons, Isidro Sanchez, had his home within the boundaries of what was to become South San Francisco and sold his tenth of Rancho Buri Buri to Charles Lux and Alfred Edmondson in 1853 for \$10,000.⁶⁹

Charles Lux, an immigrant butcher, bought out Edmondson in 1856 and proceeded to use the land to fatten cattle before driving them to San Francisco before partnering with Henry Miller in 1858 to buy land and sell beef during the California Gold Rush.⁷⁰ Together they started the firm of Miller and Lux, a dominating force in the Pacific Coast and intermountain meat markets in the 19th century. After Charles Lux's death in 1890, his heirs sold his land to a representative of Gustavus Swift, who proceeded to use the land, in present day South San Francisco, as a stockyard and market place.

Along with investors from Chicago, Swift formed two corporations that would shape South San Francisco: South San Francisco Land and Improvement Company and the Western Meat Company.⁷¹ The South San Francisco Land and Improvement Company quickly proceeded to lay out a town, designed to attract new industries and workers, a goal the company successfully met. The town grew rapidly and was incorporated as the City of South San Francisco (City) in 1908. Major industries continued to grow in the City, and at the beginning of both World Wars I and II, industry quickly shifted to shipbuilding. Following World War II, the population boomed again and continued the development of industrial and residential areas.⁷²

⁶⁷ Ibid.

⁶⁸ Ibid.

⁶⁹ Stanger, op. cit. Igler, David. 2001. *Industrial Cowboys: Miller and Lux and the Transformation of the Far West, 1850-1920*. University of California Press, Berkeley, CA.

⁷⁰ Igler, op. cit.

⁷¹ Ibid.

⁷² Blum, Joseph A. 1984. South San Francisco: The Making of an Industrial City. *California History* 63(2): 114-134. Walker, Richard A. 2004. Industry Builds Out The City: The Suburbanization of Manufacturing In the San Francisco Bay Area, 1850-1940. *The Manufactured Metropolis*, edited by Robert Lewis, Temple University Press, Philadelphia, PA.

Development of the Project Area

The project area itself has undergone various changes since its original use as pasture land by the Mission, Presidio, and as Rancho Buri Buri. Until 1915 there was little development within the project area, though nearby to the west were the large slaughterhouse and shipping center of Miller and Lux, which had their own rail spur to support them.⁷³ By 1915, however, the rail spur had expanded to Point Saint Bruno and the area had begun its industrial growth, started by the 1895 construction of the W. P. Fuller and Company Paint Plant. This was particularly true during the World War II era when South San Francisco became an aviation and marine center, with the San Bruno Canal providing valuable access for launching vessels built in the area.⁷⁴ The project area was home to a number of industrial and manufacturing companies that provided materials and goods during this period, though over time the structures were abandoned.

EXISTING CONDITIONS WITHIN THE PROJECT AREA

Records Search

On December 14, 2017, SWCA requested a search of the records found at the California Historical Resources Information System (CHRIS) at the Northwestern Information Center (NWIC), located at Sonoma State University in Rohnert Park, California. On December 21, 2017, SWCA received the records search results electronically. The records search included any previously recorded cultural resources (both archaeological and built environment), as well as any previously conducted cultural resources investigations that occurred within a one-quarter mile radius of the project area. The CHRIS search also included a review of the National Register of Historic Places (NRHP), the California Register of Historic Places (CRHR), the California Points of Historical Interest (CPHI) list, the California Historical Landmarks (CHL) list, the Archaeological Determinations of Eligibility (ADOE) list, and the California State Historic Resources Inventory (HRI) list. The NWIC also reviewed pertinent portions of historic maps that incorporated the project area, including the U.S. Geological Survey (USGS) San Mateo Quadrangle Map (1896), USGS San Mateo Quadrangle Map (1915, reprinted 1939), USGS South San Francisco Quadrangle Map (1947), and the U.S. Army Corps of Engineers San Mateo Quadrangle Tactical Map (1939).

Prior Cultural Resources Studies within One-Quarter Mile of the Project Area

The NWIC records search results indicate that there have been four previously conducted cultural resources studies within one-quarter mile of Haskins Way. These studies are listed in **Table 4.4.1: Prior Cultural Resources Studies Conducted within 0.25 Mile of the Project Area**. Two of them, S-023551 and S-047106, occurred within a portion of the project area. A brief summary of the two studies is provided below.

⁷³ Blum, op. cit.

⁷⁴ Walker, op. cit.

Table 4.4.1: Prior Cultural Resources Studies Conducted within 0.25 Mile of the Project Area

NWIC Report Number	Title of Study	Author(s)	Year	Proximity to Project Area
S-023551(a-d)	Cultural Resources Assessment, Golden Gate Power Project, San Francisco International Airport, San Mateo County, California	McKale, George, and Gillies, Sara E.P.	2000	Within project area
S-037575	New Tower ("NT") Submission Packet, FCC Form 620, East Grandview Water Tank, SF-53638A	Billat, Lorna	2010	Outside of project
S-047106	Invasive Cordgrass Project, 2015-2016 Work Locations, Cultural Resources Assessment (letter report)	Koenig, Heidi	2015	Within project area
S-048426	Historic Architecture Survey Report for the South San Francisco/San Bruno Water Control Plant Improvement Project in the City of South San Francisco, California	Bloomfield, Anne B.	1998	Outside of project area

S-23551

In 2000, George McKale and Sara E.P. Gillies prepared *Cultural Resources Assessment, Golden Gate Power Project, San Francisco International Airport, San Mateo County, California*. The purpose of the study was to identify, record, and evaluate any cultural resources within the project area for a new power plant, along with transmission and gas lines extending to and from the plant, located within a portion of the current project area. The study identified three cultural resources: a historic rail line and dock located along the power plant's proposed transmission line route, and the U.S. Coast Guard Air Station San Francisco. None of these resources are within the 201 Haskins Way project area.

S-047106

In 2015, Heidi Koenig prepared a memorandum titled *Invasive Cordgrass Project, 2015-2016 Work Locations, Cultural Resources Assessment*. The proposed project involved the enhancement of 5,971 acres of tidal marshes and mudflats at eight locations within the San Francisco Bay. The study provided the results of a records search, a review of archival resources, and an archaeological field inventory. The field inventory identified a total of 27 resources, four of which were located in the City limits of South San Francisco. None of these resources are within the current project area.

Previously Recorded Cultural Resources within One-Quarter Mile of the Project Area

The NWIC records search results indicate that there is one previously recorded cultural resource, a historic district, within one-quarter mile of the project area, and one previously recorded cultural resource, a prehistoric archaeological site (CA-SMA-000038), located within the proposed project area, as shown in **Table 4.4.2: Previously Recorded Cultural Resources Within 0.25 Mile of the Project Area**. A brief description of these resources is provided below.

Table 4.4.2: Previously Recorded Cultural Resources Within 0.25 Mile of the Project Area

Primary Number	Trinomial	Resource Description	Eligibility Status (codes defined below)	Recorded By and Year	Proximity to Project Area
P-41-000042	CA-SMA-000038	Prehistoric	Unknown	Unknown	Within
P-41-000884	N/A	Historic District	4 (Eligible for NRHP and CRHR)	The Firm of Bonnie L. Bamburg, 1988	Outside (Within 0.25 mile)

P-41-000042: PREHISTORIC SITE

Prehistoric site P-41-000042 was identified by N.C. Nelson around 1906 or 1907. While the site form for this resource contains very limited data, Nelson's publication⁷⁵ included descriptions of multiple shellmounds in the San Francisco Bay region. Therefore, it is likely that site P-41-000042 is a shellmound. However, no additional information is known about the site (including its size or contents) and the site was plotted by hand on a topographic map before 1909. Therefore, the location should be considered approximate and the site may no longer exist. The site has not been relocated since its original recordation in the early 1900s.

P-41-000884: W. P. FULLER AND COMPANY PAINT PLANT

Historic district P-41-000884 is the site of the W. P. Fuller and Company Paint Plant. Built in 1895 after the previous factory, located in San Francisco, was destroyed by fire, this facility was the largest paint and varnish works on the West Coast. The factory produced not only paint and varnish, but also heavy glass mirrors, lubricating oils, and special paint supplies. As one of the pioneering industries of South San Francisco, it had an important role in the development of the City as a whole. The site no longer exists; it was demolished to build the neighboring Genentech facility. The district, which was located at 450 East Grand Avenue, is marker site #40 in the City's Historic Marker Program. Created by the City's Historic Preservation Commission, the Historic Marker Program is an effort to identify and provide information about sites with significance as part of the history of the City, though this district no longer exists.

Historical Map Review

In addition to the historic maps reviewed by the NWIC, additional research was undertaken by SWCA, including review of the following historic topographic maps:

1. USGS San Mateo Quadrangle Map (1896), USGS San Mateo Quadrangle Map (1896);
2. USGS San Mateo Quadrangle Map (1915, reprinted 1939);
3. USGS South San Francisco Quadrangle Map (1947);
4. USGS South San Francisco Quadrangle Map (1956); and
5. U.S. Army Corps of Engineers San Mateo Quadrangle Tactical Map (1939).

⁷⁵ Nelson, op. cit.

SWCA also reviewed Sanborn Fire Insurance maps, the South San Francisco Improvement Company Map, Bromfields Official Map of San Mateo County (1894), and various survey maps of Rancho Buri Buri drawn between 1848 and 1864.

The project area currently consists of a series of modern industrial buildings, including a warehouse, offices, and a truck terminal facility (all of which were built after 1975 according to historic topographic maps).

Native American Consultation

On January 3, 2018, SWCA contacted the Native American Heritage Commission (NAHC) to request a Sacred Lands File (SLF) search and list of contacts that may have knowledge of cultural resources in or near the study area. The NAHC emailed a response on January 18, 2018, and stated that the SLF search was completed with negative results, but noted that it is always possible for cultural resources to be unearthed during construction activities. The NAHC also provided a contact list of five Native American tribes that may have knowledge of cultural resources in or near the study area.

Under CEQA regulations, Assembly Bill 52 (AB 52; 2014), all Native American coordination and consultation are required to be completed from government to government. The City initiated the AB 52 consultation processes and distributed a notification letter in May 2018. No responses requesting additional consultation or comments were received.

Paleontological Resources

Geologic mapping⁷⁶ indicates the project area consists primarily of artificial fill at the surface, with small outcrops of slope debris (northeastern and northwestern portions of the project area), sheared rocks of the Franciscan Complex (northeastern and northwestern portions of the project area), and serpentinite of the Franciscan Complex (northcentral portion of the project area). These rocks are discussed separately below, and assigned paleontological sensitivity rankings as defined by the Society of Vertebrate Paleontology are identified.⁷⁷

Artificial Fill

Artificial fill makes up the majority of the surface of the project area, except for 101 and 151 Haskins Way and 410 and 430 East Grand Avenue, and consists of clay, silt, sand, and detritus deposited by human activity in recent times,⁷⁸ and has no potential to preserve fossil resources. Artificial fill therefore has **no paleontological sensitivity**. However, the depths of the fill in the project area are unknown, and the fill likely overlies slope debris deposits and rocks of the Franciscan Complex, which crop out in the northern half of the project area, including 101, 151, and the northern portion of 201 Haskins Way; 410

⁷⁶ Bonilla, M. G., 1998. Preliminary geologic map of the San Francisco South 7.5' quadrangle and part of the Hunters Point 7.5' quadrangle, San Francisco Bay area, California: a digital database. U.S. Geologic Survey Open-File Report OF-98-354. Scale 1: 24,000.

⁷⁷ Society of Vertebrate Paleontology, 2010. Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources. Society of Vertebrate Paleontology. Impact Mitigation Guidelines Revision Committee. 11 p.

⁷⁸ Ibid.

and 430 East Grand Avenue; and the northern portion of 451 East Jamie Court. Therefore, at an undetermined depth, these sediments are likely present in the project area, and could be encountered during setting of deep foundations.

Slope Debris

Slope debris is found at the surface of the northwestern and northeastern portions of the project area and consists of stony silty to sandy clay and dates to the Pleistocene.⁷⁹ As such, this unit is old enough to preserve fossil resources (i.e., over 5,000 years old).⁸⁰ However, debris flows form under high-energy conditions that are not conducive to the preservation of scientifically significant fossils. Therefore, this unit is assigned **low paleontological sensitivity**. The thickness of this unit is unknown in the project area; however, given the proximity of outcrops of Franciscan Complex rocks in the northcentral portion of the project area, this unit may be relatively shallow in the project area. Ground-disturbing activities in the project area that exceed the depth of this unit may impact rocks of the underlying Franciscan Complex.

Franciscan Complex

The Franciscan Complex records deposition of volcanic and clastic sediments into a subduction zone during the Mesozoic era, followed by subsequent metamorphism.⁸¹ The Franciscan Complex is known to contain a wide range of fossils, including radiolarians, mollusks, diatoms, foraminifers, and marine vertebrates.⁸² There are two types of Franciscan Complex rocks present in the project area: sheared rocks and serpentine.

SHEARED ROCKS

Sheared rocks occur at the surface of the northcentral project area, to either side of the serpentine outcrops discussed below. This unit consists of small to large fragments of hard rock in a sheared rock matrix, derived primarily from serpentine and Franciscan shale and sandstone.⁸³ The project area is located on the border of the Marin Headlands Nappe and the Hunter's Point Shear Zone.⁸⁴ Shear zones are areas where fault activity has highly deformed the original rock units, and any fossils that might be preserved within those rocks. Therefore, while fossils are known from Franciscan Complex rocks, they are likely not to be

⁷⁹ Ibid.

⁸⁰ Schlocker, Julius, 1974. Geology of the San Francisco North Quadrangle, California, U.S. Geological Survey Professional Paper 782. U.S. Government Printing Office, Washington, D.C.

⁸¹ Wakabayashi, John, 1992. Nappes, tectonics of oblique plate convergence, and metamorphic evolution related to 140 million years of continuous subduction, Franciscan Complex, California. *The Journal of Geology* 100: 19-40.

⁸² Bailey, E.H., W. P. Irwin, and D. L. Jones, 1976. Franciscan and related rocks and their significance in the geology of western California. California Division of Mines and Geology Bulletin 183; 177 p. Schlocker, op. cit. Elder, William. 2015. Mesozoic molluscan fossils from the Golden Gate National Recreation Area and their significance to Franciscan Complex terrane reconstructions, San Francisco Bay Area, California. In V.L. Santucci and L. McClelland (eds), National Park Service Paleontological Research: National Park Service Technical Report NPS/NRGRD/GRDTR-98/0, pp. 90-94. Hilton, Richard P. 2003. Dinosaurs and other Mesozoic reptiles of California. Berkeley. University of California Press. 356 p.

⁸³ Society of Vertebrate Paleontology, op. cit.

⁸⁴ Wakabayashi, John, 2015. Anatomy of a subduction complex: architecture of the Franciscan Complex, California, at multiple length and time scales. *International Geology Review* 57: 669-746.

preserved in the sheared rocks that make up the project area. The sheared rocks of the Franciscan Complex in the project area have **low paleontological sensitivity**.

SERPENTINE

Serpentine rocks occur at the surface of the northcentral project area, and consist of greenish-gray serpentine with small bodies of gabbro and diabase.⁸⁵ Serpentine forms as a result of metamorphism, and is commonly associated with subduction zones, such as that documented in the Franciscan Complex rocks. Metamorphism is the alteration of earlier rocks or minerals under extremely high temperatures and pressures, which will usually destroy any fossils in the parent rock. Therefore, serpentine rocks of the Franciscan Complex in the project area have **low paleontological sensitivity**.

4.4.3 Regulatory Framework

This section provides a summary of the plans and policies of the City of South San Francisco, and regional, state, and federal agencies that have policy and regulatory control over the project site. These plans and policies include CEQA. CEQA requires a lead agency to analyze whether historic and/or archaeological resources may be adversely impacted by a proposed project. Under CEQA, a “project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment.” Answering this question is a two-part process: first, the determination must be made as to whether the proposed project involves cultural resources. Second, if cultural resources are present, the proposed project must be analyzed for a potential “substantial adverse change in the significance” of the resource.

HISTORICAL RESOURCES

According to CEQA Guidelines section 15064.5, for the purposes of CEQA, historical resources are as follows:

A resource listed in, or formally determined eligible ... for listing in the CRHR) (Public Resources Code 5024.1, Title 14 California Code of Regulations [CCR], Section 4850 et seq.).

A resource included in a local register of historical resources, as defined in Section v5020.1(k), of the Public Resources Code or identified as significant in a historic resources survey meeting the requirements of Section Public Resources Code 5024.1(g).

Any object, building, structure, site, area, place, record, or manuscript that the lead agency determines to be eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA) if the resource meets the criteria for listing on the CRHR (as defined in Public Resources Code Section 5024.1, Title 14 CCR Section 4852).

⁸⁵ Bailey, Robert G., 1995. Description of the Ecoregions of the United States. 2d ed. U.S. Department of Agriculture, Forest Service, Miscellaneous Publication Number 1391. p. 50.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined above) does not meet the NRHP criteria may still be eligible for listing in the CRHR.

According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be an historical resource. Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (CEQA Guidelines Section 15064.5[b]).

ARCHAEOLOGICAL RESOURCES

In terms of archaeological resources, Public Resources Code Section 21083.2(g) defines a *unique archaeological resource* as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a proposed project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Public Resources Code Sections 21083.2[a], [b], and [c]). CEQA notes that, if an archaeological resource is neither a unique archaeological resource nor an historical resource, the effects of the project on those resources shall not be considered to be a significant effect on the environment (CEQA Guidelines Section 15064.5[c][4]).

CALIFORNIA STATE ASSEMBLY BILL 52

In 2014, AB 52 amended Public Resources Code Section 5097.94 and added Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3.

Consultation with Native Americans

AB 52 formalizes the lead agency/tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, a mitigated negative declaration, or an environmental impact report.

Tribal Cultural Resources

Section 4 of AB 52 adds Sections 21074(a) and 21074(b) to the Public Resources Code, which address tribal cultural resources and cultural landscapes. Section 21074(a) defines *tribal cultural resources* as one of the following:

- (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - (A) Included or determined to be eligible for inclusion in the CRHR.
 - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- (2) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 1 (a)(9) of AB 52 establishes that “a substantial adverse change to a tribal cultural resource has a significant effect on the environment.” Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the Public Resources Code, which states that parties may propose mitigation measures “capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource.” Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (Public Resources Code Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (Public Resources Code Section 21082.3[a]).

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (Public Resources Code Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs, may be nominated for inclusion in the CRHR. According to Public Resources Code Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.

- **Criterion 3:** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

TREATMENT OF HUMAN REMAINS

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code (CHSC) Section 7050.5. More specifically, remains suspected to be Native American are treated under CEQA at CCR Section 15064.5; Public Resources Code Section 5097.98 illustrates the process to be followed in the event that remains are discovered. If human remains are discovered during construction, no further disturbance to the site shall occur, and the County Coroner must be notified (CCR 15064.5 and Public Resources Code 5097.98).

4.4.4 Impacts and Mitigation Measures

This section describes the impact analysis related to cultural resources for the proposed project. This section also describes the methods used to determine the impacts of the proposed project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany the discussion of each identified significant impact.

Per the CEQA Guidelines, Appendix G, a cultural resources impact is considered significant if project implementation would result in one or more of the following:

- a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines § 15064.5;
- b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5;
- c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- d. Disturb any human remains, including those interred outside of dedicated cemeteries.

SIGNIFICANCE CRITERIA

State CEQA Guidelines specify that a “substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines Section 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes “those physical characteristics of an historical resource that convey its historical significance

and that justify its inclusion” or eligibility for inclusion in the NRHP, CRHR, or local register. In addition, pursuant to CEQA Guidelines Section 15126.2, the “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.”

The following guides and requirements are of particular relevance to this study’s analysis of indirect impacts on historic resources. Pursuant to CEQA Guidelines Section 15378, study of a project under CEQA requires consideration of “the whole of an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.” CEQA Guidelines Section 15064(d) further defines direct and indirect impacts as follows:

- a. A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project;
- b. An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment; or
- c. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

APPROACH TO ANALYSIS

The potential impacts of the proposed project on cultural and paleontological resources were evaluated based on the results of the CHRIS records search, the paleontological records search, geologic mapping, historic map review, a search of the SLF at the NAHC, and historic aerial imagery.

For historical resources, the potential for impacts on historical resources is determined first by the presence or absence of historical resources within the project area and, if an eligible resource is present, by assessing the potential of the project to cause a substantial adverse change in its significance.

For paleontological resources, the analysis is based on a review of geologic mapping and the results of the paleontological records search. These sources are used to determine whether there is a known resource or sensitive geologic formation present in the project area. If sensitive formations are present, the analysis considers whether the proposed ground disturbing activities are likely to impact unique paleontological resources.

For archaeological resources, the analysis is based on the results of the CHRIS records search, NAHC SLF search, and review of historic maps and aerial imagery. These sources are used to assess whether an archaeological resource which may be eligible for the CRHR or which may qualify as a unique archaeological resource is present within the project area. If an eligible or potentially eligible resource is present, the analysis considers whether the project would cause a substantial adverse change in the significance of the resource. The analysis also considers the potential for encountering previously unrecorded archaeological resources and/or human remains during proposed project ground disturbance.

IMPACT EVALUATION

Impact CR-1: Construction activities for the proposed project would not cause a substantial adverse change in the significance of an historic architectural resource as defined in Section 15064.5. (*No Impact*)

Previously recorded historic district P-41-000884 is the site of the W.P. Fuller and Company Paint Plant and was previously located adjacent to the northeast corner of the project area. However, the site no longer exists and has been replaced with a Genentech research facility. The address (450 East Grand Avenue) still boasts a marker site #40 from the City's Historic Marker Program. Created by the City's Historic Preservation Commission, the Historic Marker Program is an effort to identify and provide information about sites with significance as part of the history of the City. This marker references a district that is no longer on the site and would not be considered to indicate a cultural or historic resource under CEQA.

The Phase 1 area is currently occupied by the light-industrial 201 Haskins Way Building, constructed around 1977, and the existing 400-450 East Jamie Court Building, developed in the early 2000s. The Phase 2 area is currently occupied by five one- to two-story light-industrial buildings constructed during the 1980s. These existing structures are not historic-in-age and are not eligible for designation on the CRHR. Therefore, both the proposed Phase 1 project and project buildout would have no impact on historic architectural resources. No mitigation is required.

Impact CR-2: Construction activities for the proposed project would cause a substantial adverse change in the significance of archaeological resources, if such resources are present within the project site. (*Less than Significant with Mitigation*)

The results of the CHRIS records search indicate that one archaeological site (P-41-000042) has previously been recorded within the proposed project area. There is limited information available about the previously recorded site, which was identified in the early 1900s and has not been relocated since that time. The NAHC SLF search returned negative results. The project site is highly disturbed and consists of existing light industrial uses and business and technology park uses. The project site is located on historic Bay tidelands subject to fill and development in the post-war industrial period. Excavation activities associated with the proposed project would result in a total of approximately 19,000 cubic yards of soils off-haul generated during the construction period (approximately 11,000 cubic yards of soil during Phase 1 development, and approximately 8,000 cubic yards of soil during Phase 2 development), and construction would result in a total of approximately 25,000 cubic yards of imported soils (approximately 15,000 cubic yards during Phase 1 development, and approximately 11,000 cubic yards during Phase 2 development).

Geotechnical studies show that the project site is underlain by approximately 20 to 25 feet of fill in addition to approximately 0 to 20 feet of Bay Mud. Bedrock on the project site is estimated at depths between 20 and 78 feet. Therefore, foundations may also require pile-driving, auguring, or drilling to a maximum depth of approximately 78 feet below ground surface. Although the identified shellmound resource (P-41-00042) is poorly documented and is not likely to be accurately mapped, it is possible that excavation activities in the project site at depths below fill may encounter this resource. In addition,

previously unknown archaeological resources could be inadvertently unearthed during ground-disturbing activities. This inadvertent discovery could be a potentially significant impact; however, the impacts of the proposed project on archaeological resources would be reduced to less-than-significant levels through the implementation of Mitigation Measures MM-CR-2a: Cultural Resources Worker Environmental Awareness Program (WEAP), MM-CR-2b: Cultural Resources Monitoring During Ground-Disturbing Activities, and MM-CR-2c: Halt Construction Activity, Evaluate Find, and Implement Mitigation.

Mitigation Measure MM-CR-2a: Cultural Resources Worker Environmental Awareness Program (WEAP)

A qualified archaeologist should conduct a WEAP training for all construction personnel on the project site prior to construction and ground-disturbing activities. The training should include basic information about the types of artifacts that might be encountered during construction activities, and procedures to follow in the event of a discovery. This training should be provided for any additional personnel added to the project even after the initiation of construction and ground disturbing activities.

Mitigation Measure MM-CR-2b: Cultural Resources Monitoring During Ground-Disturbing Activities

A qualified archaeologist shall monitor all ground-disturbing activities within native sediments within the project. This monitoring will continue for the duration of the project or until culturally sterile sediments are reached (e.g., bedrock). A qualified archaeologist may determine to decrease or increase monitoring efforts based on sediments observed, findings, or number of large ground disturbing machines in operation.

Mitigation Measure MM-CR-2c: Halt Construction Activity, Evaluate Find, and Implement Mitigation

In the event that previously unidentified paleontological, archaeological, historical, or tribal resources are uncovered during site preparation, excavation, or other construction activity, all such activity within 25 feet of the discovery shall cease until the resources have been evaluated by a qualified professional, and specific measures can be implemented to protect these resources in accordance with sections 21083.2 and 21084.1 of the California Public Resources Code. If the find is significant, the archaeologist will excavate the find in compliance with state law, keeping project delays to a minimum. If the qualified archaeologist determines the find is not significant then proper recordation and identification will ensue and the project will continue without delay.

Impact CR-3: Construction activities for the proposed project would disturb human remains, including those interred outside of formal cemeteries, if such remains are present within the project site. (*Less than Significant with Mitigation*)

The CHRIS records search, NAHC SLF search, and review of historic maps did not indicate the presence of human remains within the proposed project site. As such, there are no known human remains that would be disturbed by the proposed project. As mentioned under Impact CR-2 above, the project site is located in Bay fill lands. No formal cemeteries have been located on the project site, and human remains would be unlikely to be found. However, if inadvertent discovery of human remains occurs, implementation of Mitigation Measure MM-CR-3: Halt Construction Activity, Evaluate Remains, and Take Appropriate Action in Coordination with Native American Heritage Commission would reduce the impacts associated with inadvertent discovery of human remains to a less-than-significant level.

Therefore, both the proposed Phase 1 project and project buildout would have a less-than-significant impact with mitigation regarding human remains.

Mitigation Measure MM-CR-3: Halt Construction Activity, Evaluate Remains, and Take Appropriate Action in Coordination with Native American Heritage Commission

In the event that human remains are uncovered during site preparation, excavation, or other construction activity, all such activity within 25 feet of the discovery shall cease until the remains have been evaluated by the County Coroner, and appropriate action taken in coordination with the NAHC, in accordance with section 7050.5 of the CHSC or, if the remains are Native American, section 5097.98 of the California Public Resources Code.

Impact CR-4: Construction activities for the proposed project would cause a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resources Code Section 21074, if such resources are present within the project site. (*Less than Significant with Mitigation*)

The results of the CHRIS records search indicate that one archaeological site (P-41-000042) has previously been recorded within the proposed project area. There is limited information available about the previously recorded site, which was identified in the early 1900s and it has not been relocated since that time. The NAHC SLF search returned negative results, and outreach by the City under AB 52 has not resulted in the identification of any tribal cultural resources within the project site. The project site is highly disturbed and consists of existing light industrial uses and business and technology park uses. The project site is located on historic Bay tidelands that was subject to fill and development in the post-war industrial period. Construction activities associated with the Project would include the removal of approximately 18,090 cubic yards of soil during Phase 1 and 2. Although not anticipated, previously unknown tribal cultural resources could be inadvertently unearthed during ground-disturbing activities. This inadvertent discovery would be a potentially significant impact and require mitigation. To avoid and mitigate this potentially significant impact, the project sponsor would implement Mitigation Measures MM-CR-2a: Cultural Resources Worker Environmental Awareness Program (WEAP), MM-CR-2b: Cultural Resources Monitoring During Ground-Disturbing Activities, MM-CR-2c: Halt Construction Activity, Evaluate Find, and Implement Mitigation, and MM-CR-3: Halt Construction Activity, Evaluate Remains, and Take Appropriate Action in Coordination with Native American Heritage Commission. Therefore, both the proposed Phase 1 project and project buildout would have a less-than-significant impact on tribal cultural resources with the incorporation of these mitigation measures.

Impact CR-5: Construction activities for the proposed project would not directly or indirectly destroy a unique paleontological resources or site or unique geologic feature. (No Impact)

Based on the paleontological resources desktop evaluation, all geologic units found within the project area have either no paleontological sensitivity or low paleontological sensitivity. There are no unique geologic or paleontological features associated with the project site. The proposed project would not impact unique paleontological resources or geologic features. Therefore, both the proposed Phase 1 project and project buildout would have no impact on paleontological resources.

CUMULATIVE IMPACTS ANALYSIS

As described in Impacts CR-1 and CR-5, above, the proposed project would have no impact on historic architectural resources or paleontological resources or geologic features, and these topics are not further discussed. The analysis below focuses on cumulative impacts associated with archaeological resources and tribal cultural resources.

Impact C-CR-1: The proposed project would make a cumulatively considerable contribution to a significant cumulative impact on historic or archaeological resources. (*Less than Significant with Mitigation*)

The proposed project's potential contribution to cumulative impacts on archaeological resources is evaluated in the context of past, present, and reasonably foreseeable future development expected in the City and includes the cumulative projects and plans listed in Section 4.1, Approach to Environmental Analysis, pp. 4.1.7-4.1.9.

Although the potential prehistoric shellmound site identified by N. C. Nelson as described above is not well documented, the project site is part of the larger East of 101 Area prehistoric context. Nelson's publication included descriptions of multiple shellmounds in the San Francisco Bay region. Similar to the proposed project, ground-disturbing activities of past, present, and reasonably foreseeable future projects in the project vicinity have the potential to disturb archaeological resources, including other prehistoric shell mounds. These construction activities could cause a substantial adverse change in the significance of an archaeological resource. In addition, each of these projects also has the potential to encounter previously unrecorded resources. As with the proposed project, mitigation would be required. if archaeological resources or human remains are identified during implementation of any of these cumulative projects. Mitigation measures such as MM-CR-2a, MM-CR-2b, MM-CR-2c, and MM-CR-3, presented above, would reduce impacts to less than significant. Therefore, the proposed project, in combination with other past, present, and future reasonably foreseeable projects, would not cause significant cumulative impacts on archaeological resources or human remains. The project would not make a cumulatively considerable contribution to a significant cumulative impact on archaeological resources or human remains.

Impact C-CR-2: The proposed project would make a cumulatively considerable contribution to a significant cumulative impact on tribal cultural resources. (*Less than Significant with Mitigation*)

As with Impact C-CR-1, above, ground-disturbing activities of past, present, and reasonably foreseeable future projects in the project vicinity have the potential to disturb tribal cultural resources within the larger East of 101 Area tribal cultural context in a manner similar to the proposed project. Construction activities from each of these projects could cause a substantial adverse change in the significance of a tribal cultural resource, or encounter previously unrecorded resources. As with the proposed project, mitigation would be required if tribal cultural resources are identified during implementation of any of these cumulative projects. Mitigation measures such as MM-CR-2a, MM-CR-2b, MM-CR-2c, and MM-CR-3, as presented above, would reduce impacts to less than significant. Therefore, the proposed project, in combination with other past, present, and future reasonably foreseeable projects, would not cause significant cumulative impacts on tribal cultural resources. The project would not make a cumulatively considerable contribution to a significant cumulative impact on tribal cultural resources.

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