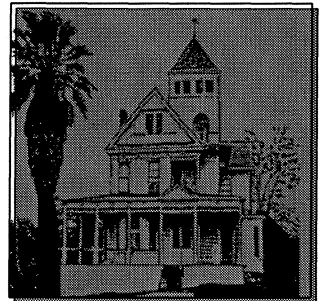


Appendix C



Appendix C

Environmental Resources

The Folsom Historic District encompasses both developed lands and open space areas. These existing undeveloped areas support most of the important natural environmental resources in the project area. The open space is concentrated primarily along the south bank of Lake Natoma within the Lake Natoma Unit of the Folsom Lake State Recreation Area (FLSRA). Within the Historic District boundaries, the FLSRA consists of federally owned land and state-owned lands that contain dredge tailings. These lands are managed by the California Department of Parks and Recreation. The City's intent is to continue its policy of cooperation with the California Department of Parks and Recreation. This cooperation may include joint development of trails, parking, and other facilities consistent with the missions of both agencies as well as communication and problem-solving on topics of mutual concern.

Most of the central portion of the Historic District is developed urban land, but small areas support small amounts of the same communities found on the state-managed lands. The City values the trees and other landscaping installed in the developed area for their contribution to the natural environment as well as to the attractiveness and comfort of the District.

The following sections discuss environmental resources that occur throughout the Historic District.

C.01 GEOLOGY

The City of Folsom is located on the east margin of the Sacramento Valley at the base of the central Sierra Nevada foothills. Within the Historic District, elevations vary from approximately 130 ft. above mean sea level (msl) to 320 ft. msl, with a mostly gradual trend from higher elevations in the northeast area to lower elevations along the north and west boundaries at the edge of Lake Natoma (U.S.G.S., 1980). The southwest portion of the Historic District is located on an upper terrace with elevations from 200 to 320 ft. msl. A steep slope parallel to Lake Natoma drops about 40 vertical ft. over a horizontal distance of 300 ft. to a lower terrace. This slope extends between Figueroa, Sutter, and Leidesdorff Streets at the northeast Historic District boundary, then occurs on a more north-south alignment between Sibley and Reading Streets and between Orange Grove Way and the Southern Pacific Railroad in the central part of the Historic District. The lower terrace has elevations from 150 to 170 ft. msl. A narrow steep bank area along Lake Natoma drops about 70 vertical ft. over a horizontal distance of 600 ft. to the lake water level (126 ft. msl).

Surface geology includes sedimentary deposits of historic dredge tailings at the east and west boundaries, unconsolidated Quaternary alluvium along Folsom Boulevard, and consolidated Tertiary alluvial terrace deposits of the Laguna Formation over most of the central and south portions of the Historic District (Wagner, et al., 1981). An area of undifferentiated metamorphic and igneous rock (primarily granite) is concentrated near the south bank of Lake Natoma between Riley and Coloma Streets (City of Folsom, 1992). The level of geological constraints to human use

of the Historic District is little to no constraint,¹ as defined by the Master Environmental Assessment for the Folsom General Plan (1988).

Soils within the Historic District include five different mapping units that occur on varying slopes and parent material: Argonaut-Auburn urban land complex, Red Bluff-urban land complex, Urban land, Xerolls, and Xerorthents (dredge tailings) (see Figure D-1). Soil constraints vary among the mapping units from slight to

Relative levels of environmental constraint, identified by Folsom MEA (July 1988), range from critical to little or no constraint. "Little or No Constraint" is defined as an environmental parameter that poses little or no limits to human activity. Examples would include grass vegetation areas, level to gently rolling land, and most animal species.

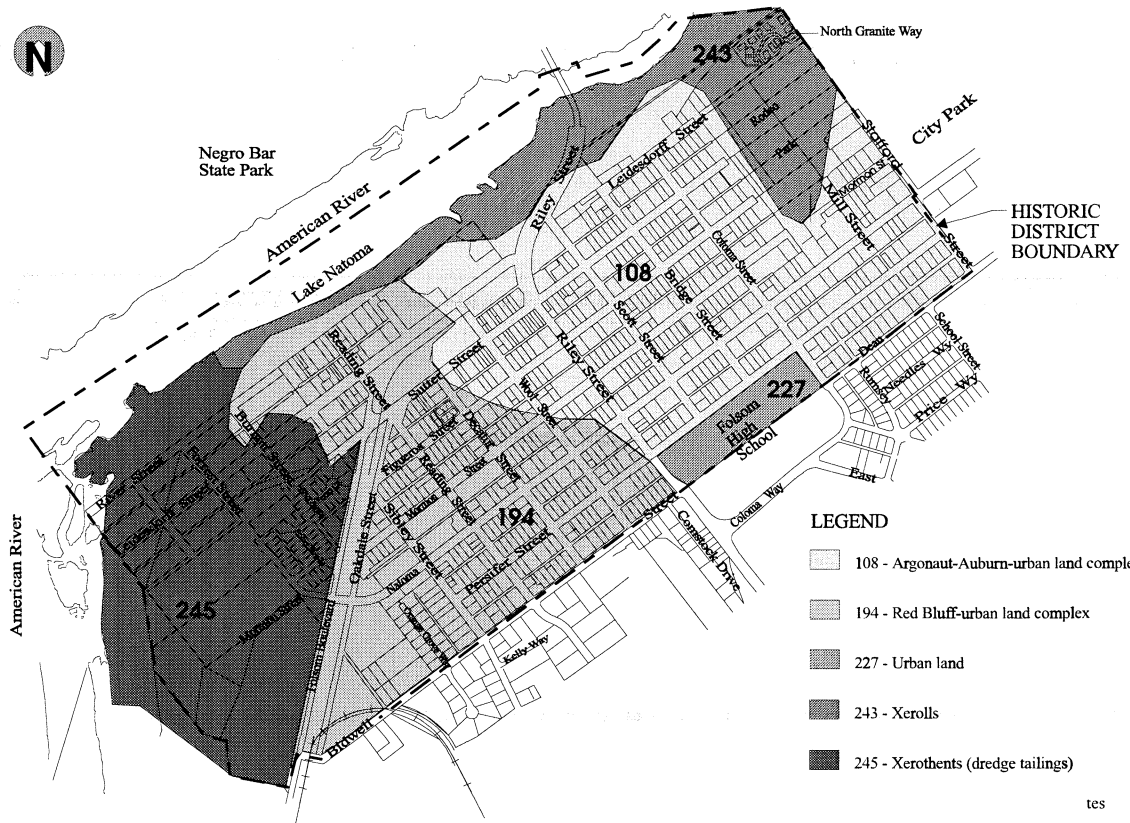
Severe for runoff rate, erosion hazard, and shrink/swell potential. Within the central, developed portion of the Historic District, for example, the potential for shrink/swell is high on both mapping units that occur there, the Argonaut-Auburn urban land complex and the Red Bluff-urban land complex. Runoff rates are medium on the Argonaut-Auburn urban land complex and slow to medium on the Red Bluff-urban land complex. Erosion hazard is slight to slight/moderate in this area. The only area with severe erosion hazard is on the Xerolls mapping unit, which is located in the northeast corner of the Historic District from the rodeo park to the river. Future development plans would need soil engineering studies to determine site-specific constraints. (U.S.D.A. SCS, 1993)

No active faults are located in the Historic District or immediate vicinity (Jennings, 1994). Therefore, seismic hazards related to surface ground rupture is unlikely. However, moderate to large earthquakes on one of the local or regional faults would subject the Historic District to the effects of ground motion. The closest faults to the Historic District are the Bear Mountain and New Melones Faults in the Foothills Fault Zone, 5 to 25 mi. east of the site. Moderate to large earthquakes in the Foothills Fault Zone are relatively rare, although future activity is possible. Several large active earthquake faults are located in the Central Valley and San Francisco Bay Area, between 30 to 95 mi. away. The fault zone along the eastern scarp of the Sierra Nevada, about 70 mi. to the east, could also affect the Historic District.

C.02 HYDROLOGY

The major hydrologic feature in relation to the Historic District is the American River/Lake Natoma, which defines the north and west boundaries of the Historic District. Lake Natoma is formed by Nimbus Dam, which was constructed on the American River in the early 1950s by the Corps and is now operated and maintained by the U.S. Bureau of Reclamation. The normal pool elevation of Lake Natoma is 126 ft. msl. The American River originates in the Sierra Nevada and captures runoff from a 1,875 sq. mi. drainage in the central Sierra Nevada (SAFCA, 1994). The river flows through Lake Natoma before continuing downstream to join the Sacramento River at Discovery Park in the City of Sacramento. The stretch of river between Folsom Dam and Nimbus Dam is unimpeded except for Rainbow Bridge. The southern abutment of the bridge is near the

FIGURE C-1
SOILS IN THE HISTORIC DISTRICT



center of the northern Historic District boundary. The American River channel is well defined, and the river flows freely until the river channel transitions to the broader channel and quiet water of Lake Natoma near Rainbow Bridge. No natural surface waterways occur within the Historic District.

The American River has a long history of flooding in the downstream areas, but there are no records of past flooding in the City of Folsom (City of Folsom, 1992). The Federal Emergency Management Agency (FEMA) mapped the American River floodplain for the reach between Folsom Dam and Nimbus Dam in 1981 for the City of Folsom Flood Insurance Study (FIS). The 100-yr. and 500-yr. FEMA floodplains for Lake Natoma occur within open space areas in the FLSRA parkway of the Historic District. All currently urbanized portions of the Historic District are outside of the floodplains.

Major storms in February 1986 resulted in record high flows in the lower American River, when the maximum release from Folsom Dam was 136,000 cubic feet per second (cfs) (City of Folsom, 1992). Before the 1986 storms, FEMA used a flow of 115,000 cfs to determine the FIS base flood.² The recently approved interim reoperation of Folsom Dam and Reservoir (SAFCA, 1994) emphasizes limiting releases to 115,000 cfs. However the ongoing American River Watershed Investigation by the U.S. Army Corps of Engineers includes alternatives that could allow the maximum release from Folsom Dam to reach 180,000 cfs. In the American River Bridge Crossing Project EIR/EIS (1992), the 100-yr. water surface elevation within Lake Natoma, including the effects of the proposed bridge, was estimated to be approximately 133 to 138 ft. msl for the 115,000 cfs and 180,000 cfs flows, respectively. This range in elevation near the Historic District is located entirely within the FLSRA.

Local flood control policies of Folsom are contained in Chapter 14.32, "Flood Damage Prevention", of the Folsom Municipal Code. The purpose of this chapter is to promote public health, safety, and general welfare and to minimize public and private losses attributable to flood conditions. The city requires the city engineer to review all development permits to determine if the proposed development adversely affects the flood-carrying capacity of the area or flood hazard. For the purposes of Chapter 14.32, the flood-carrying capacity is considered to be adversely affected if the cumulative effect of the proposed project, when combined with all other existing and anticipated development, will increase the water surface elevation of the base flood more than 1 ft.

The Historic District is served by a stormwater drainage system that is mostly piped, although a few areas have open roadside swales. The system is currently adequate for 5- to 10-yr. storms, but under more intense storms localized overflow onto streets may occur. During the January, 1995 storms, for example, the design capacity of the drainage system was exceeded, creating minor flooding problems throughout the City. However drainage was rapid, within about an hour after the rainfall stopped. (Buck, pers. comm.)

The City stormwater system discharges to Lake Natoma at multiple locations. Some discharge points are via open ditches and some are piped outfalls. One outlet location within the Historic District is at the Folsom Powerhouse site. This drainage is fed by a system that includes 1 open ditch parallel to Riley Street between Mormon and Sutter streets and another open ravine adjacent to the northeast side of the Radisson Inn. A second outlet drains to Lake Natoma through a culvert behind The Lakes development. Runoff from the Rodeo Park site may have a direct route to the lake, or may drain to the historic feed canal that once provided water to the Powerhouse for hydroelectric power generation.

Routine maintenance of the stormwater drainage system is handled by the Street Division of the City of Folsom Public Works Department. Minor improvements to the system are implemented incrementally in conjunction with new projects or street improvements such as the recent installation of a new sewer line along Riley Street. These drainage system improvements include installation of new drainage inlets with leaf traps. (Buck, pers. comm.)

FIGURE C-2
LOCATION OF NATURAL AREAS IN THE HISTORIC DISTRICT



C.03 WATER QUALITY

Water quality in Lake Natoma is considered good to excellent and is affected largely by variations in total flow due to power plant operations and releases from Folsom Dam. The East Bay Municipal Utility District (EBMUD) routinely collects water quality data on the lower American River. The data indicate that water in Lake Natoma and in the lower American River is of high quality with low mineral content, nutrient levels, and algae production and a neutral pH (City of Folsom, 1992). Water quality in the American River has historically met the objectives mandated by the Central Valley Regional Water Quality Control Board. In more recent years, however, the lower American River has experienced violations of pH and dissolved oxygen standards as well as periodic high temperatures (SAFCA et al., 1994).

The City of Folsom is a co-permittee in a joint Municipal National Pollutant Discharge Elimination Systems (NPDES) permit (with the Sacramento County Water Agency, the City of Sacramento, and the City of Galt). This permit requires the permittees to evaluate water quality impacts from urban stormwater runoff and to implement pollutant control programs. The programs must reduce adverse water quality impacts from construction of new development and in existing urban areas, such as the Historic District. The Comprehensive Stormwater Management Program for the NPDES permit consists of programs to reduce urban runoff pollutions. These programs include pollutant management for construction sites and new development, drainage facility maintenance, and street cleaning, among others.

The base flood is defined as the flood that has a 1 percent change of being exceeded in any given year. This is equivalent to a flood that, on average, would be exceeded once in 100 years.

All individual projects within the City must comply with the City Drainage Ordinance, which includes construction phase erosion and sedimentation control measures. In addition, construction activities that require large-scale grading (5 acres or more) may require a Construction Activities NPDES permit from the Central Valley Regional Water Quality Control Board.

C.04 BIOLOGY

Although most of the urbanized lands in the Historic District have been landscaped, areas of common natural vegetation communities also occur (see Figure D-2). Landscaped areas contain primarily exotic plant species, but may also support trees protected under the City of Folsom tree ordinance³. The Historic District has a wide variety of introduced tree species, including tree-of-heaven (*Ailanthus altissima*), liquidambar (*Liquidambar* spp.), magnolia (*Magnolia* spp.), London plane tree (*Platanus acerifolia*), Chinese pistachio (*Pistacia chinensis*), fan palm (*Washingtonia robusta*), and many others.

Common natural communities found in the Historic District include nonnative (annual) grassland and ruderal/disturbed areas on vacant lots and historic dredge tailings. These communities support primarily nonnative species of grasses and forbs. Although nonnative species generally provide less valuable wildlife habitat, the grassland community has nesting and foraging habitat. Few large expanses of grassland are present within the Historic District, but parts of the FLSRA and the corporation yard support grassland that may be increasingly important for wildlife as the urban area continues to expand.

Sensitive natural communities are mostly confined to the FLSRA, and are more likely to provide important wildlife habitat and potentially support special status species than are landscaped or common natural communities. The types of sensitive natural communities found within the FLSRA include riparian woodland, mixed forest, oak savanna, and several types of wetlands (City of Folsom, 1992; U.S. Fish and Wildlife Service, 1989).

C.04.01 Riparian woodland

Riparian woodland is a structurally diverse wetland community found within the Historic District adjacent to intermittent drainages within the FLSRA, between Rodeo Park and adjacent private land, and along the edge of Lake Natoma. Much of the riparian woodland in the Historic District grows on a cobble substrate formed by dredge tailings along the bank of the lake. Riparian communities are among the most biologically productive natural systems. The several structural layers of a riparian forest support a diverse assemblage of wildlife species, from the birds that nest high in the upper canopy to the reptiles, amphibians, and small mammals found in the leaf litter. Although the riparian woodland along Lake Natoma within the Historic District is relatively sparse and intermittent, wildlife are present in this community in the greatest abundance and diversity of any community in the Historic District.

Riparian woodland in the Historic District supports numerous native oak trees, including valley oak (*Quercus lobata*), live oak (*Q. wislizenii*), and blue oak (*Q. douglasii*). Other dominant native tree species in this community are cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), and several species of willow (*Salix* spp.). Digger pine (*Pinus sabiniana*) may also be interspersed. The shrub layer of the riparian woodland along Lake Natoma includes dense areas of Himalayan blackberry (*Rubus discolor*), poison oak (*Toxicodendron diversiloba*), a few vines such as wild grape (*Vitis californica*) and pipevine (*Aristolochia californica*), and a very few elderberry shrubs (*Sambucus mexicana*), which are significant because they are potential habitat for protected trees, as defined by Folsom's Municipal Code, include: 1) native oak species, which are blue oak (*Quercus douglasii*), valley oak (*Q. lobata*), interior live oak (*Q. wislizenii*), and their hybrids that have a diameter at breast height (dbh) of at least 6 in. (8 in. for interior live oak) for single-trunked trees and an aggregate dbh of at least 20 in. for multi-trunked trees; 2) heritage trees, which are native oaks with a circumference of sixty inches or more for single-trunked trees or an aggregate circumference of 120 in. or more for multi-trunk trees; 3) street trees, which grow within the tree maintenance strip; and 4) landmark trees, which are designated by the City Council.

the federally threatened valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*). VELB emergence holes have been observed in elderberry shrubs within the FLSRA (City of Folsom, 1992).

2 stick nests were observed in the riparian community during the 1995 field reconnaissance. 1 nest was unoccupied, and the other was occupied by a red-tailed hawk.

C.04.02 Mixed forest

Mixed forest is the most structurally diverse community in the Historic District. This community occurs as a mosaic with riparian woodlands, forming a continuous band of vegetation around Lake Natoma and along the American River. Within the Historic District mixed forest is confined to the FLSRA. The mixed forest supports a rich assemblage of trees and shrubs, with an understory of annual grass and forb species. The overstory is dominated by native trees, such as live oak, blue oak, valley oak, and digger pine. Nonnative trees observed in this community include fig (*Ficus carica*), tree-of-heaven (*Ailanthus altissima*), and black locust (*Robinia pseudoacacia*). The structural diversity of the mixed forest provides important habitat for a variety of wildlife species. Also, because the forest is contiguous with riparian and other woodland habitats in the project area, wildlife species move frequently between the communities. The mixed forest, like other woodland habitats, supports species that are found only in woodland habitats, as well as many species that breed or find cover in woodland habitats while foraging in adjacent grasslands or other open habitats. Mixed forest in the Historic District also supports elderberry, the host plant of VELB.

C.04.03 Oak savanna

Oak savanna is characterized by an open-canopied overstory of native oak species with a dense to sparse understory of annual grassland species. This community is dominated by blue oaks on arid sites and live oaks in wetter areas and is found in parts of the FLSRA. An isolated strip of live oaks is also present adjacent to Riley Street and an open swale that serves as a part of the stormwater drainage system. Valley oaks, buckeye (*Aesculus californica*), and digger pines are sometimes interspersed in this community. While not as structurally diverse as mixed forest or riparian habitats, oak savanna provides essential habitat for many wildlife species. Acorns from blue and live oak trees are an important food resource to mule deer, gray squirrels, and several woodpecker species. Large digger pines provide nest sites for cavity-nesting birds, such as American kestrels, western bluebird, and plain titmouse, and food cache sites for woodpeckers.

The phainopepla may occur in the oak savanna community within the Historic District. Although not a special-status species, the phainopepla is a bird species of local concern to the Sacramento Audubon Society. The area along the American River from Folsom Dam to Lake Natoma represents the only known breeding site for this species in Sacramento County. (City of Folsom, 1992)

C.04.04 Wetland communities

Wetland communities within the Historic District include riparian woodland (described above), ephemeral drainage, open water, creek, emergent aquatic, and wet meadow. These communities are found primarily within the FLSRA on federal- and state-owned land, but small areas also occur

within other parts of the Historic District. For example, a small area of scrub-like riparian woodland occurs at the southern corner of the Rodeo Park on city-owned land, and an intermittent drainage exists as part of the storm drainage system parallel to Riley Street between Mormon and Sutter Streets on privately owned land.

Wetland communities may be subject to regulatory jurisdiction under Section 404 of the federal Clean Water Act. Dredge and fill activities in wetland communities that meet the federal definition of Waters of the United States, including wetlands, are regulated by the U.S. Army Corps of Engineers and EPA.

C.04.05 Ephemeral drainage

Ephemeral drainages of the project site consist of rocky depressions that carry runoff during and immediately after storm events. These drainages have poor soil development and a low vegetation cover of annual grassland and forb species. Ephemeral drainages occur in the Historic District on steep slopes adjacent to Lake Natoma and within the swale adjacent to Riley Street between Mormon and Sutter Streets. Ephemeral drainages that have a distinct bed and bank and a discernible high water mark may be considered jurisdictional other waters of the United States.

C.04.06 Open water

The open water community is found in Lake Natoma and in adjacent perennial creeks. This community is characterized by a year-round, fast-moving water source that typically does not support vascular plant species. Open water is considered an important natural community because it provides habitat to fish and aquatic or partially aquatic wildlife species. Open waters are typically considered jurisdictional other waters of the United States under the federal Clean Water Act.

C.04.07 Creek habitat

Creek habitat is found north of Rainbow Bridge within the FLSRA. Creeks have a perennial water source and support a rich assemblage of aquatic, emergent aquatic, and wet meadow species. Creek channels are typically considered other waters of the United States, and portions of the banks often meet criteria for a jurisdictional wetland under Section 404 of the federal Clean Water Act.

C.04.08 Emergent aquatic areas

The emergent aquatic or marsh community supports species that are rooted in soil below the water surface or are submerged in water for a portion of their life cycle. The emergent aquatic community is found along slow-moving waterways, including the shoreline of Lake Natoma, and creeks. This community provides potential breeding habitat for the tricolored blackbird, a candidate species for federal listing.

C.04.09 Wet meadows

Wet meadows are potentially jurisdictional wetlands found within the FLSRA, often occurring adjacent to emergent aquatic vegetation along creeks and intermittent drainages.

C.04.10 Special status species

Special status species known to occur within the Historic District include black-shouldered kite (*Elanus caeruleus*) and Cooper's hawk (*Accipiter cooperi*). A black-shouldered kite nest is located less than 1/2 mile northeast of the Historic District boundary, and a potential Cooper's hawk nest site is located adjacent to this boundary (City of Folsom, 1992). Elderberry shrubs, host plant for the federally endangered valley elderberry longhorn beetle (VELB), also occur in riparian and mixed forest communities in the Historic District. Removal of elderberry shrubs is considered a "take" of the VELB by the U.S. Fish and Wildlife Service, requiring an incidental take permit under Section 7 or 10 of the Federal Endangered Species Act. Potential habitat for 15 other special status animals and 2 special status plants is present within the Historic District (City of Folsom, 1992). No recorded occurrences of special status species are listed by the California Natural Diversity Data Base for the Historic District (CNDDDB, 1995).