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NODOSI—SITES RESERVOIR

CULTURAL RESOURCES INVESTIGATION OF THE NEW CANAL CONVEYANCE ALTERNATIVE

COLUSA COUNTY, CALIFORNIA

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1.0 Introduction

1.1 Project Description and Location

The US Bureau of Reclamation (BOR), the Department of Water Resources (DWR), and CALFED are examining the potential for a new pipeline conveyance related to the proposed construction of the Sites Reservoir. This project is part of the North-of-the-Delta Offstream Storage Investigation Feasibility Study, which will identify potential sources of water to fill the proposed reservoir. A number of alternative conveyance routes have been considered, including the reinforcement and expansion of existing facilities, the construction of new facilities, or a combination of these. Through a cost-benefit analysis that considers engineering, environmental, and economical issues, several alternatives have been deferred. One of the remaining alternatives is the diversion of water from the Sacramento River through a new canal near Maxwell Road to Funk's Reservoir, which would serve as a forebay for the Sites Reservoir (DWR 2001). Alternative V, dubbed the New Canal alternative, was also selected by DWR for the current cultural resources investigation.

The new canal diversion would have a capacity of at least 5,000 cubic feet per second and will be located across from the Moulton Weir on the Sacramento River (Figure 1). Water would be conveyed west, though agricultural land, to Funks Reservoir via an open cannel in an east-west alignment located between the Delevan and Sacramento National Wildlife Refuges. The alignment was chosen "to minimize environmental impacts and to minimize the length required to convey water from the Sacramento River to the Sites Reservoir" (DWR 2001:19).

The canal will be unlined between the Sacramento River and the first of three pumping plants, situated approximately 8.5 miles west of the river. At this point, the canal would require a depth of about 19.5 feet, with a bottom width of 45 feet and a top width of 135 feet. From its confluence with the Colusa-Basin Drain flowing from the north, the New Canal will be required to increase capacity to 8,000 cubic feet per second, which translates into a deeper and wider canal. The area of potential effects, as currently designed, is not expected to be deeper than 22 feet and wider than about 350 feet, which considers the right of way (DWR 2001). In all, the New Canal project area encompasses an area measuring approximately 13 linear miles and 1,500 feet wide. Because of the ground disturbance affiliated with this undertaking, and the potential for adverse effects on subsurface and surface archaeological sites, DWR initiated the cultural resources investigation of the New Canal alignment as part of the feasibility study.

1.2 Personnel

The cultural resources investigation for the Pipeline Conveyance Cultural Resources Investigation Project was conducted under a contract between the California DWR Northern District and the Archaeological Research Program of the California State University, Chico Research Foundation, Inc. All phases of the cultural resources investigation were conducted by, or under the direct supervision of, Archaeological Research

Program senior staff. The ARP is led by a team of qualified professional archaeologists that meets the Secretary of the Interior's Standards for prehistoric and historical archaeologists.

Dr. Gregory G. White, PhD has been the Director of the ARP since 1996 and served as Principal Investigator. He received a Bachelor of Arts degree in Anthropology (with distinction) from Sonoma State University; a Master of Arts degree in Anthropology from the University of California, Davis; and a Ph.D. in Anthropology from the University of California, Davis. Dr. White teaches introductory and advanced courses in archaeology and cultural resource management for the Department of Anthropology at CSU, Chico. Dr. White also currently serves as Editor-in-Chief of the *Society of California Archaeology Newsletter* and is an Executive Board Member and Business Office Manager for the Society for California Archaeology. He is affiliated with the Society for California Archaeology and the Society for American Archaeology.

Field crew members participating in the project were comprised of current student staff and recent graduates from California State University, Chico. At a minimum, crew members participating in the project must have 1) a minimum of 6 months of specialized experience and/or a 4-year course of study above high school at an accredited technical school, college, or university leading to a bachelor's degree with courses related to archaeology; 2) have specialized experience defined as experience that equipped the applicant with the particular knowledge, skills, and abilities to perform successfully the duties of the position; 3) be able to conduct an archaeological pedestrian survey using a compass, topographical map, and aerial photographs; 4) be able to identify historical and prehistoric artifacts; 5) be proficient at preparing sketch maps, site forms, isolate forms, and photography; 6) have the ability to use GPS units, aerial photographs, maps, and compasses in site recording and survey; and 7) be capable of following survey protocol and crew chief or project manager instructions. Field crew was comprised of Maggie Trumbly, Kristina Crawford, and Matt Rives.

1.3 Confidentiality

Sections 6253, 6254, and 6254.10 of the California State Code authorize state agencies to exclude archaeological site information from public disclosure under the Public Records Act. Likewise, the Information Centers of the California Historical Resources Information System maintained by the Office of Historic Preservation prohibit public dissemination of records search information. In compliance with these requirements, and those of the Code of Ethics of the Society for California Archaeology and the Register of Professional Archaeologists, the results of this cultural resource investigation were prepared in a publicly-accessible format that omitted archaeological site locations. Additional restricted information includes the locations of cultural resource isolates and sites newly recorded during this study. In consideration of these confidentiality concerns, all sensitive information related to this study is presented in a confidential appendix with highly restricted distribution (Appendix B).

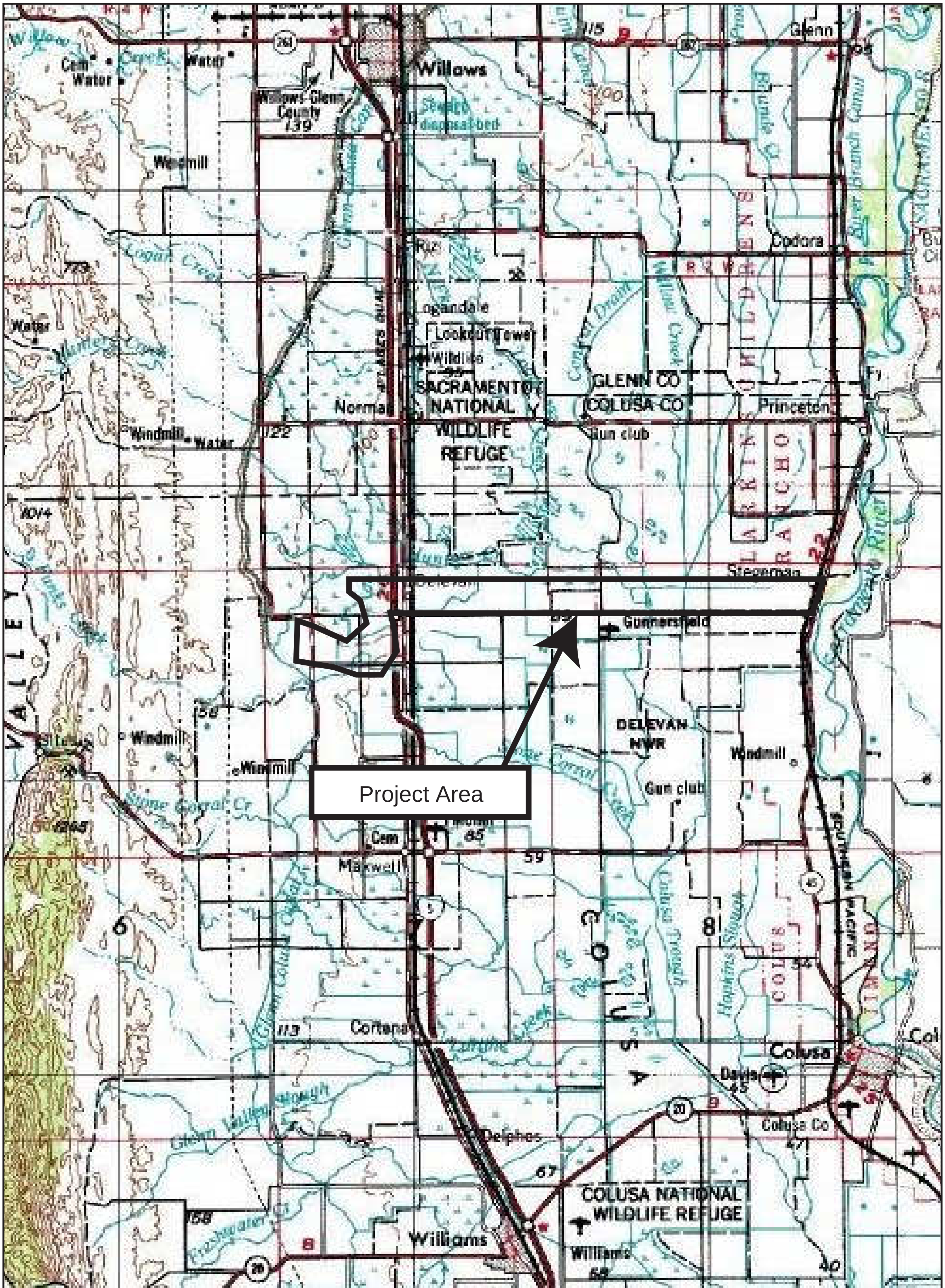

Figure 1. Project area vicinity map.

1.4 Regulatory Context

This study was conducted in compliance with Section 106 of the National Historic Preservation Act (NHPA; 1966 [Public Law 89-665; 16 U.S.C. 470 et seq.], as amended). Section 106 of NHPA states*:*

> The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking *(16 U.S.C. 470f — Advisory Council on Historic Preservation, comment on Federal undertakings).*

Section 106 (as codified in 36 CRF 800, *Protection of Historic Properties*) further requires that if, through appropriate research and consultation, an adverse effect to historic properties is anticipated, then the lead agency must seek ways to avoid, minimize, or mitigate those adverse effects. The lead agency for Section 106 compliance for the project is the BOR, which is responsible for conducting required studies and submitting the required documentation to the appropriate consulting parties.

This cultural resources investigation was also conducted in accordance with the provisions of the California Environmental Quality Act (CEQA) that pertain to the treatment of cultural resources in planned projects under the jurisdiction of non-federal agencies. Title 14 of the California Code of Regulations, Chapter 3 (*Guidelines for Implementation of the California Environmental Quality Act*), Article 5 (*Preliminary Review of Projects and Conduct of Initial Studies*), Section 15064.5 states that any project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. As such, the lead agency is required to identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource, which are enforced through permit conditions, agreements, or other measures.

Finally, the current project also conducted an historic resource inventory according to the Secretary of the Interior's Standards and Guidelines, compiling information sufficient to permit preliminary evaluation of each property for possible inclusion in the National Register of Historic Places (NRHP), following the Secretary of the Interior's Standards and Guidelines for Evaluation (48 F.R. 190:44729-44738; *Federal Register* Vol. 63 No. 79, April 24, 1998: 20496-20508) and the *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (1991).

2.0 Setting

2.1 Natural Setting

The natural environment of the northern Sacramento River Valley was previously examined in the *Cultural Resource Overview and Management Plan* for the US Fish and Wildlife Service, Sacramento River National Wildlife Refuge (White et al. 2003a). Others have thoroughly examined the present, historic, and paleoenvironmental conditions of the study area as well (see White 2003), which leads to a clearer understanding of prehistoric subsistence strategies and lifeways in and around the New Canal project area.

2.1.1 Flora

Since historic times, the entire landscape of the central Sacramento Valley has been remodeled by agriculture and other forms of development, making it difficult to determine the extent and diversity of early ecological communities. Regardless, some early accounts of Euroamerican fur trappers and explorers serve as rare documentation of the natural environment of the area. Historically, three basic ecological communities were in existence: riparian woodland, California prairie, and seasonal wetlands. These zones were sorted laterally across the valley from the river to the foothills (Thompson 1961, 1980).

Riparian Woodland

Based on examination of relict stands, Thompson and others have defined the basic species composition and ecology of the riparian woodland (Barbour and Major 1988; Burcham 1981; Holland and Keil 1990; Ornduff 1974; Thompson 1961, 1980). The woodland had significant floral diversity and a complex architecture with woody Upper and intermediate overstory species and a dense understory of vines and herbaceous and shrubby plants. The overstory canopy was dominated by the California valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), and California sycamore (*Platanus racemosa*), all three representing deciduous, flood tolerant species possessing deep tap roots capable of reaching the permanent water table. A distinct intermediate overstory zone was composed of Oregon ash (*Eraxinus latifola*), walnut (*Juglans* sp.), cottonwood (*Populus* sp.), big leaf maple (*Acer macrophyllum*), California box elder (*Acer negundo sub californicum*), White alder (*Alnus rhombifolia*), California bay (*Umbellullaria californica*), and willow (*Salix* sp.). Typical understory species included elderberry (*Sambucus mexicana*), mugwort (*Artemisia douglasiana*), mulefat (*Baccharis viminea*), wild rose (*Rosa californica*), button-willow (*Cephalanthus occidentalis*), and blackberry (*Rubus* sp.). Common vines and climbers included Dutchman's pipe vine (*Aristolochiacalifornica*), poison oak (*Rhus diversiloba*), wild grape (*Vitis californica*), greenbrier (*Smilax californica*), and wild clematis (*Clematis* sp.). The parasitic big mistletoe (*Phoradendron tomentosum sub. macrophyllum*) is found on overstory trees (Katibah 1984; Ornduff 1974; Roberts et al. 1980; White et al. 2003a).

California Prairie

In 1849, Lt. G.H. Derby of the U.S. Army led a mapping expedition which depicted a mile-wide corridor of woodland bordering the river north of Colusa. The Derby and Ide maps

depict broad prairies ("low, moist grounds bearing much grain") extending out directly from the riparian forest. California prairie occupied the largest section of valley floor, the broad, flat to gently sloping plains between the foothills and floodplains. A deep water table and long dry season meant that the grassland habitat lacked moisture for four to eight months every year. Annual weather cycles conditioned the type and density of grassland plant species (Crosby 1986; Heady 1988). Cool season species matured between April to June, while a few warm season annuals reached peak growth during the summer months. Dominant bunch grasses included needle grass (*Stipa pulchra*) and nodding needlegrass (*Stipa cernua*). Common perennial and annual grasses included California oatgrass (*Danthonia californica*), tufted hairgrass (*Dechampsia caespitosa*), three-awn (*Aristida* sp.), hairgrass (*Deschampsia danthonoides*), western and Idaho fescues (*Festuca occidentaus*, *F. idahoensis*, *F. megalura*, and *F. pacifica*), Pacific reedgrass (*Calamagrostis nuthaensis*), rye (*Elymus glaucus* and *E. triteoides*), junegrass (*Koeleria cristata*), melicgrass (*Melica californica* and *M. imperfecta*), and bluegrass (*Poa Scabrella*). Common forbs included brodiaea (*Brodiaea* sp.), buttercup (*Ranunculus occidentalis* and *R. californicus*), blue-eyed grass (*Sisyrinchium bellum*), lupine (*Lupinus variicolor*), clover (*Trifolium* sp.), and vetch (*Vicia* sp.). Primarily a treeless plain, the prairie also had a valley oak phase marked by widespread single trees and an occasional large, closed stand (Burcham 1981:81; Heady 1988:495; White et al. 2003a).

Seasonal Wetlands

Flooding created winter-spring wetlands including vernal pools in the basins alongside the Sacramento River floodplain. Plant succession around the pools and mudflats began with the wet season floods, promoting growth of species adapted to cool weather and fresh water. In the spring the wetlands dried and poor drainage and slow evaporation led to alkali accumulation. Accordingly, alkali-tolerant grasses and forbs dominated in the seasonal wetlands, including saltgrass (*Distichlis stricta*) alkali sacaton (*Sporobolus airoides*), peppergrass (*Lepidium latipes*), saltbush (*Atriplex* sp.), tarweed (*Hemizonia* sp., *Madia* sp.), hareleaf (*Lagophylla* sp.), and clover (*Trifolium fucatum*). Herbs and forbs also followed as the wetlands dried, and prairie grasses described above also intermixed with these elements, dominating in high areas and as the wetlands dried (White et al. 2003a).

2.1.2 Fauna

Commensurate with each floral community was a wide range of faunal species, most of which regularly traversed habitat boundaries. For example, most carnivores and omnivores, including coyote (*Canis latrans*), gray fox (*Urocyon cinerargentus*), badger (*Taxidea taxus*), spotted skunk (*Spilogale putorius*), striped skunk (*Mephitis mephitis*), bobcat (*Felis rufus*), puma (*Felis concolor*), black bear (*Ursus americana*), and grizzly bear (*Ursus horribilis*), had widespread distributions and might prowl all three habitats in a single foray. Storer and Tevis (1955) provide a number of late 19th century accounts of California grizzly in the Sacramento Valley lowlands (White et al. 2003a).

California Prairie Fauna

Of the three habitats, the California Prairie likely supported the highest proportion of large herbivores, including tule elk (*Cervus elophus nannodes*), pronghorn (*Antilocapra americana*), and black-tailed deer (*Odocoileus hemionus columbianus*) (White et al. 2003a).

Tule elk likely served as one of the most significant aboriginal game animals of the grasslands. Living in small, fluid herds whose movements changed "in response to local conditions" (McCullough 1969:47; see also Smith 1973 and Phillips 1976:62), by September the elk probably accumulated near riparian woodlands within one mile of perennial water sources. The rut probably took place near the end of September, characterized by bull-dominated cow groups of up to 30 to 50 individuals. Larger herds probably coalesced after the rut, feeding primarily on acorn mast until November when they shifted to small, dispersed grazing groups occupying mixed prairie and oak woodland (McCullough 1969; Smith 1973; Phillips 1976; White et al. 2003a).

Pronghorn were also common in the California prairie. Subsisting primarily on annual grasses and forbs and relying on open ground and speed for defense from predation, the pronghorn was most likely a permanent resident of the prairie. The rut took place in October, characterized by small, buck-dominated doe groups of 5 to 15 individuals. Larger herds might gather in the late fall through spring, dispersing into smaller herds in the summer (White et al. 2003a).

Black-tailed deer is a subspecies of the mule deer that is found across a wide area, including coastal southern British Columbia; western Washington; Oregon; and in California south to Santa Barbara County, in the Cascade Range, and in the northern Sierra Nevada. In open prairie regions, like the California prairie, mule deer tend to concentrate in river breaks and brushy stream bottoms. They browse on several thousand different plant species across their range, and as such, they are capable of altering or severely damaging many plant communities. Black-tailed and Mule deer consume the leaves, stems, and shoots of woody plants most often during summer and fall, while grasses and forbs compose the bulk of spring diets. Mating Season can begin in September for black-tailed deer, with a birthing season beginning in April (Snyder 1991; USFS n.d.).

Small game typical of the prairie included the black-tailed jackrabbit (*Lepus californicus*), Beechey ground squirrel (*Spermophilis beecheyi*), kangaroo rat (*Dipodomys heermanni*), and pocket gophers (*Thomomys bottae*). These may have served as an equally important food source for prehistoric populations in the vicinity (White et al. 2003a).

Riparian Woodland Fauna

In light of the widespread dispersal of Black-tailed deer, they are most likely to be found in either open forested regions or on the plains and prairies. The Riparian Woodland community is a natural attractant to this species. Among other places, they are found in alpine, montane, and foothill zones, sheltering at lower elevations when snows become deep. In the high ranges of the Rocky Mountains, mule deer migrate during winter, sometimes moving 50 to 100 miles (80-160 km) (Snyder 1991; USFS n.d.).

However, in the lower elevations of the Sacramento River valley, black-tailed deer were probably fixed to specific territories, relying on cover provided by riparian woodland. Exceptions to this pattern include yearling dispersal, buck travel during the rutting season, wandering by aged deer, desiccation, burning, and disturbance from over-predation. In fact, an established animal can nearly always be found within a 450 meter (500 yard) radius of the

center of its home range. Black-tailed deer primarily subsist on green grass and browse in November through March, and oak and other browse between April through October (Taber 1956:164-165; White et al. 2003a).

Small game of the riparian woodland included gray squirrel (*Sciurus griseus*), ground squirrel, Audubon cottontail (*Sylvilagus audubonii*), brush rabbit (*Sylvilagus bachmani*), California quail (*Lophortyx californicus*), ringtail (*Bassariscus astutus*), as well as many small perching birds, rodents, reptiles, amphibians, and bats (White et al. 2003a).

River and Stream Fauna

The perennial nature of the Sacramento River meant that it could support a menagerie of river and stream fauna year round. Animals common to the river included beaver (*Caster canadensis*), Pacific pond turtle (*Clemmys marmorata*), molluscs (*Anodonta californiensis* and *Gonidea angulata*), and predators such as raccoon (*Procyon lotor*), ringtail (*Bassariscus astutus*), weasel (*Mustela frenata*), mink (*M. vison*), and river otter (*Lutra canadensis*). Resident riparian avifauna included waterfowl such as ducks, teal, and shovelers (*Anas* sp.), wood duck (*Aix sponsa*), coot (*Fulica americana*), double crested cormorant (*Phalacrocorax auritus*), western grebe (*Aechmophorus occidentalis*), and gulls (*Larus* sp.). Wading birds, some of which were migratory, included great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), snowy egret (*Egretta thula*), great egret (*Casmerodius albus*), and American bittern (*Botaurus lentiginosus*). The project area lies directly in the Central Valley path of the Pacific Flyway. Migratory waterfowl, including swans, geese, and ducks (*Anseriformes*) stop over between approximately November and February. Ethnographic accounts describe the valley thick with waterfowl during the winter season. In general, they favored open ground or shallow water of the basin areas (White et al. 2003a). Today, these migratory waterfowl species rest in flooded agricultural fields along the Sacramento River.

The extraordinary fisheries of the Sacramento River featured a number of resident and anadromous fishes. The largest migratory fish was the white sturgeon (*Acipenser transmontanus*); however, the most common fishes belonged to the cyprinidae family, including hitch (*Lavinia exilicauda*), splittail (*Pogonichthys macrolepidotus*), hardhead (*Mylopharadon conocephalus*), and the western pike-minnow (*Ptychocheilus grandis*). Other common resident fish included the western sucker (*Catostomus occidentalis*), Sacramento perch (*Archoplites interruptus*), and tule perch (*Hysterocarpus traskii*). Each of these species was widely dispersed most of the year, but during the spring season could be found clustered in side streams, sloughs, or shallow water habitats for nesting or spawning. Anadromous fishes primarily spawned in the late fall or winter, but also had spring runs. These included the Pacific lamprey (*Lampetra lethophaga*) and several salmonids, including the king salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), and steelhead rainbow trout (*Salmo gairdneri gairdneri*) (White et al. 2003a).

2.1.3 Physical Setting

The topography of the current project area is relatively flat east of Interstate 5 and steadily rises to the west, with elevations ranging between 75 and 450 feet above mean sea level. The topographic homogeneity of the eastern portion is likely due to the ongoing soil formation

processes of the Sacramento River. The project area is situated on relatively recent alluvial flood deposits left by the meandering river over time, resulting in the deposition of well-sorted, sandy alluvium that is easily tilled and well-suited for agricultural use. Meandering is visible by the presence of oxbow lakes, such as Boggs Bend, located south of Princeton. The eastern extent of Boggs Bend is located approximately 1,400 meters (4,600 feet) from the current stream channel, attesting to the width of the meandering belt of the Sacramento River and the extent of its resulting alluvial deposition. West of Interstate 5, the topography gradually rises into the lower foothills of the Coastal Range, in which the proposed Sites Reservoir is situated.

The project area is located in the Colusa Subbasin of the Sacramento Valley Groundwater Basin, which is extends west from the Sacramento River to the Coast Range and foothills, south to Cache Creek, and north to Stony Creek. It accepts precipitation between 17 and 27 inches annually, and runoff, from a surface area of 1,434 square miles (DWR 2003). A number of hydrogeologic formations are present in the Colusa Subbasin; only two of which occurred within the last 10,000 years. The Holocene Stream Channel Deposits are comprised of unconsolidated gravel, sand, silt, and clay derived from the erosion, reworking, and deposition of the adjacent Tehama Formation and Quaternary stream terrace deposits. These deposits typically measure from 1 to 80 feet in thickness (Helley and Harwood 1985; DWR 2003). The Holocene Basin deposits are the result of the transportation of sediment-laden floodwaters across the floodplain. These deposits range in thickness up to 150 feet, and consist primarily of silts, clays, and stream channel deposits (DWR 2003). Hence, evidence for prehistoric human utilization of the project area could lie undetected beneath extensive alluvial deposits.

2.2 Cultural Setting

An understanding of the culture history of the vicinity is crucial to the accurate interpretation of cultural resources located within or adjacent to the project area. The culture history of the current project area can be described in terms of three general time periods: prehistoric (archaeological), ethnographic, and historical. Additional details on the cultural setting of the project area are contained within a separate report (White, et. al in progress).

2.2.1 Archaeology

Evidence for ancient human occupation of the project area or vicinity is scant, but recent obsidian hydration sampling at Borax Lake near Clear Lake provides tentative evidence indicating that occasional obsidian quarrying activity was occurring in northern California as early as 16,000 years ago (White et al. 2003b:448-449). Sparse evidence and parsimonious toolkits indicate that these earliest peoples were culturally conservative, low-density hunters and foragers who moved between widespread resource patches and practiced technological traditions that were similar from region to region. Although human concurrence with Pleistocene megafauna is suspected, it is not well demonstrated in the archaeological record. The most ancient confirmed cultural traces in northern California are associated with the Western Clovis Tradition and Borax Lake Pattern. The Western Clovis Tradition (Willig and Aikens 1988) dates between approximately 10,500 to 13,500 years before present (BP).

Western Clovis is represented by one site and a few scattered artifacts in Northern California, marked by use of the distinctive Clovis fluted point. Diet and settlement patterns remain matters of speculation (Fredrickson 1984:497; Fredrickson and White 1988).

Early Holocene cultures are represented in the region by the Borax Lake pattern, which is the northern California manifestation of the Western Stemmed tradition, dating between approximately 7,000 and 10,500 BP (Willig and Aikens 1998). The marker types include wide-stemmed projectile points, and manos and metates, with deep, flue-like basal thinning, large bladelet flakes, and well-worked unifacial tools, which are carryovers from Paleo-Indian technology. A few sites have produced plant and animal remains indicating that the Borax Lake Pattern diet featured large nuts and small and large game (White et al. 2003b). Several sites attributed to this age have been identified within the foothills of Glenn and Colusa counties, composed of stemmed projectile points, cores and core tools, and a mano and metate; and other sites, whose lower deposits are consistent with a Borax Lake Pattern assignment (White et al. 2003b).

In the Middle and Late Holocene, between approximately 7,000-1,200 BP, distinct regional cultural traditions first emerged in northern California and include the Mendocino and Berkeley Patterns. In the north Coast Ranges, the Berkeley Pattern was endemic to alluvial basins, while the Mendocino Pattern was common to foothills and mountainous terrain, suggesting different ecological niches. Mendocino Pattern artifacts include notched, concave-based, and thick leaf-shaped projectile points, shaped and cobble manos and metates, cobble pestle and mortars, and basalt core tools. Rock features such as hearths, ovens, and cairns were common, although no domiciles have been identified. Components are invariably non-midden deposits ranging from attenuated materials typical of a brief stay to more substantial and diverse assemblages indicating seasonal base camps. Studies of plant and animal remains indicate a focus on small seeds and a mix of small and large game.

After 3,000 BP, the archetypical Upper Archaic culture is the Berkeley Pattern, which had considerable cultural diversity, with distinct variants having been identified in the central Sacramento Valley and central North Coast ranges (Bennyhoff 1994; White et al. 2003b). Certain traits are common to all Berkeley Pattern variants, including a highly developed bone-tool industry, *atl-atl* engaging hooks, and dart-sized non-stemmed points (Beardsley 1954:74; Fredrickson 1974:125-126; Lillard et al. 1939:77). Inter-regional trade intensified, as evidenced by widespread stylistic traits, marine shell beads, and obsidian. Berkeley Pattern sites contain many features, especially fire-cracked rock heaps, shallow hearths, rock-lined ovens, house floors, cairns, and graves. The high frequency of mortars and pestles relative to flaked stone has been read to indicate a heavy reliance on acorn processing (Fredrickson 1974:125; Moratto 1984:209; White et al. 2003b).

During the Late Holocene, after 1,200 BP, many Archaic technologies and cultural traditions disappeared, in each region replaced by the onset of cultural patterns and behaviors similar to those existing locally at the time of culture contact. The archetypical Emergent Period culture is the Augustine Pattern, a widespread tradition marked by the coalescence of long-distance trade spheres and the introduction of the bow and arrow, which replaced the *atl-atl*. The Augustine Pattern has been divided into two phases common to most or all localities.

Phase I markers include *Olivella* whole and lipped beads, "banjo" type *Haliotis* ornaments, elaborately incised bird-bone whistles and ear tubes, and "flanged" soapstone pipes. Phase 2 artifacts include small corner-notched and triangular points, clam disc beads and bead drills, magnetite cylinders, bedrock mortars, and house pit sites often ascribable to known ethnographic villages (Beardsley 1954:77-79; Bennyhoff in Elsasser 1978:44; Fredrickson 1984; Moratto 1984:213). Other new traits which distinguished the Augustine Pattern include pre-interment grave pit burning with tightly flexed burials, and cremation, a form of burial apparently reserved for high status individuals during Phase I, but widespread during Phase 2 (Fredrickson 1974:127; Moratto 1984:211). Grave offerings such as shell beads and ornaments regularly occurred with utilitarian items, including mortars and pestles. The Augustine Pattern economy was regionally variable, although shaped mortars and pestles predominate with charred acorns frequently found in middens. Sites consistent with a Late Holocene occupation in Colusa county include the upper component of Mathis Mound; and several sites excavated north of the town of Sites, which are represented by recent prehistoric short-term seasonal gathering camps or stations occupied by a few individuals and possibly related to a larger permanent or semi-permanent village (West et al. 1976:10).

2.2.2 Ethnography

The aforementioned patterns recognized by archaeologists continued to the point of contact with Western society. Early Euro-American anthropologists and explorers often recorded their observations and opinions of Native American cultures en route across North America, on missions, trade routes, or exploration. This early ethnographic information provides archaeologists with a valuable link between the archaeological record and modern Native American cultures.

The current project area was likely populated by the Patwin (Figure 2), which are linguistically classified as Wintun of the Penutian language stock. The Wintun are separated linguistically and culturally into three major groups: the northern Wintu; the central Wintun, or Nomlaki; and the southern Wintun or Patwin. These three groups represent mutually unintelligible languages, each divided into local dialects. The Patwin themselves are divided into two distinct groups, the River Patwin who inhabited approximately 80 miles along the Sacramento River, and the Hill Patwin, who lived in the Coast Range foothills.

Throughout the middle and late Holocene until European settlement, the early people of northern California remained hunting and gathering subsistence-based cultures. The absence of agriculture in the greater part of California may be linked with an efficiency of the collecting and hunting economy. Acorns were the staple food source of the Patwin, and were used in making gruel, soup, and bread. Other foods used by the Patwin include deer; fish, including salmon, perch, pike, and sucker; birds such as geese, duck, and quail; blackberries and elderberries; grubs; worms; and wild honey.

Patwin architecture is some of the most complex in terms of its permanence, size, and the amount of people required to organize and build community structures. Patwin dance houses are said to be some of the largest in California (Kroeber 1932, McKern 1923). Patwin houses were constructed for both permanent and temporary functions, and have been

designated into four types of permanent housings: the dwelling house, the menstrual hut, the sudatory (sweat) house, and the ceremonial dance house. Patwin dance houses were the largest community structures, and were greater in size than those of the Nomlaki and Northern Wintun (Kroeber 1925). Unique to the Patwin, through also employed by the Pomo, are the use granaries, which were used to store acorn and other grains.

The Patwin traded for obsidian, along with cordage, headbands, and other commodities from the Pomo along the coast, with shell beads being the dominant monetary unit (Kroeber 1925, Powers 1975). Patwin ceremonial and religious practices combined elements of social performance, lineage, social hierarchy, economy, and technology. The Kuksu society, or "Big-Headed" dance, practiced in varying forms throughout California, was a male secret society focusing on initiation through ritualistic raising of the dead (Kroeber 1925, 1932).

Figure 2. California Native American Tribal Groups (California Native American Heritage Commission 2004).

Culture contact between Native Californians and immigrant populations the world occurred at various times in northern California, dating to as early as 1579, when Sir Francis Drake visited the Coast Miwok. The project area formed the northern frontier of Spanish and Mexican territory, and accordingly, the region's earliest known non-Indian visitors consisted of Spanish military expeditions on patrol.

Early contact between the Euro-American settlers and the Native American inhabitants was relatively peaceful. The Colus Indians were prominent along the Sacramento River basin. Chief Sioc was the primary authority figure, well respected and feared by the people (Rogers 1891). The main Native American village site was located in Colusa, called Ko-ru or Coru, situated at the place where the Municipal Water Works of Colusa was built. An epidemic in 1832 forced the remainder of the native inhabitants across the river. At least a dozen villages were known to exist between Princeton and Sycamore, and many more in other areas along the Sacramento River (McComish and Lambert 1918).

2.2.3 History

It is believed that perhaps the first Euroamerican to enter the Colusa area was Spanish explorer Captain Gabriel Moraga in 1808. At that time, Moraga traveled from the San Francisco Bay, up the Sacramento River to a point about 18 miles north of the town of Colusa. Moraga traversed through an area that was home to Native American groups, which had occupied the area around Colusa for thousands of years. The name "Colusa" is believed to have been derived from the indigenous word, *coru*, referring to a Patwin village site.

The area likely remained relatively unknown to Euroamericans until 1843, when John Bidwell and Peter Lassen, in the interest of their employer, John Sutter, visited the area in pursuit of horse thieves. Bidwell was soon fascinated with the area, and eventually received two land grants by the Mexican government – one in Solano County and the other in Colusa County, named the Colus Grant. The appeal of the Colusa area to Bidwell, however, was not enough to outweigh that of the gold-bearing Feather River. However, Thomas Larkin, the American consul to the Mexican government in Monterey, built an adobe in 1847 near the abandoned Patwin village of Chah' de'-he near Princeton (Bidwell 1877 in Rogers 1891; White et al. 2003b).

Euroamerican settlement of the Colusa area is credited to a Kentuckian in 1846 or 1847, Dr. Robert Semple, when he became enchanted with the Colusa area during a passage up the Sacramento Valley to see Red Bluff. Optimistic about the potential of the Sacramento River for commerce, Semple later journeyed up the Sacramento River on a homemade vessel of cottonwood logs. He inquired about the ownership of land north of the Colus Indians, and discovered that it was part of a Mexican land grant owned by John Bidwell (Green 1876). Dr. Semple's brother, Charles D. Semple, was encouraged by his brother to purchase the land from Bidwell to establish a new city, at the location where Dr. Semple had originally observed the Colus Indian settlement. However, C. Semple misinterpreted his brother's directions, at originally set up camp at a temporary camp of the Colus, seven miles north of the actual location. A visit from Dr. Semple cleared up the misunderstanding, and realized that the most desirable location for the town – the location that Dr. Semple had intended – was downstream at Salmon Bend. Col. Semple, with the help of a carpenter named Hicks and an 18-year old man named Green, decided to move the new town to its intended location downstream. Several streets were initially laid out by Green, and the first house built was on Lot 2, in block 6, on Levee Street between 5th and 6th Streets. It measured 20 x 30 feet and 1.5 stories high, and operated as a store and bar by the firm of Semple & Green. Later, a hotel was attached (Green 1876).

Colusa soon became a way station on the route of wagon and mule trains that serviced Shasta and the northern mines. Several people recognized the potential of the Sacramento River for transportation of goods, people, and livestock from Sacramento north. Unfortunately, the river was known for its snags. The first steamboat commissioned to navigate the waters of the Sacramento River was called the "Colusa" in 1850. The ship was purchased for a total of $60,000, but broke down on her maiden voyage. Semple tried again with the Martha Jane. It proved unsuccessful, and was eventually sold to alleviate increasing debts. In 1851, Shasta merchant Lewis Johnson agreed to use a ship regularly if one could be found – and the Benicia boat was commissioned soon after. George V. Hight captained the vessel on its route from Sacramento with flour, but encountered snags at Knight's Landing and sunk. The Orient was next in line, and was more successful. By 1854, the snags between Monroeville and Colusa were removed by town founder U. P. Monroe (Green 1876).

The town of Colusa began to grow. In just two months Levee Street was built up from 4th to 7th Streets. Early mercantile houses included Chenery & Hazzletine, Carpenter & Spalding, Alderman Brothers, Hoop & L'Ameroux, P. B. Woods, Van Wie & Co., Proctor N. Smith, and Patch Brothers. William Vincint and O. C. Berkey built the Colusa House, J. H. Leining built a restaurant in 1851, and W. Riley built a blacksmith shop (Green 1876). On approximately the fifth day of September 1855, the town of Colusa was nearly destroyed by a fire that started in a stable on the northwest corner of 6th and Main streets during a strong northerly wind. The only structures left after the fire were in the business district, the Colusa House, the National Hotel, and several one-story houses between the Colusa House and the river (Green 1876).

The town of Colusa was finally incorporated in 1868 (Green 1876) after the upper-class citizens of Colusa were distressed over the wallowing of pigs and miners in the streets (Cook n.d.). The Webster School House, on Webster Street between 4th and 5th Streets, was erected in 1871 by R. Fariss. A rear wing was added in 1874, and the building supported 500 students and teachers. The Colusa Water Works plant on 3rd and Levee was erected in 1870 to pump water from the Sacramento River to houses for domestic use. Over 10,000 feet of primary pipe was laid within the town (Green 1876). City Hall was built in 1870, known as the Station House at 6th and Main Streets. A new city hall was built on Market at 4th and 5th Streets in 1890 (Cook n.d.). The town grew to include the typical array of nineteenth-century small town businesses: attorneys, banks, barbers, bakeries, blacksmiths, cobblers, breweries, carpenters, clothing merchants, carriage painters, civil engineers, confectioners, dentists, pharmacists, hotels, music teachers, newspapers, oyster saloons, restaurants, saloons, tobacco and cigar shops, telegraph stores, wagon makers, wheat dealers, and wool dealers (Green 1876). In 1876, the town's population reached and estimated 2,500 residents, including 430 school children and six teachers. Colusa also was the home of the county courthouse and a county hospital (Green 1876).

Early on, lands in the Sacramento Valley were considered useless – fit only for raising and grazing stock. The first crop experimented with was wheat, planted about 0.5 mile west of Colusa, near Klew's Slaughter House in 1852. These early plantings were unsuccessful. Farming was primarily restricted to lands along the river, although a few inland farmers were successful as well (e.g., Gibson, Williams, Elrey, Weyand, Miller, Stoval, and Johns farms).

By the mid 1800s, many people were farming wheat. The best soil, called black "dobe" was preferred for wheat crops, whereas the sandy soil mixed with gravel was better for barley (Green 1876).

3.0 Research Design

3.1 Previous Research

Prior to the initiation of fieldwork, the Archaeological Research Program conducted a prefield literature review and records search of in-house records recently obtained from the Northwest Information Center of the California Historical Resource Information System, California Office of Historic Preservation. The site records were obtained through the examination of official records and maps for archaeological sites and surveys located within the project area and within a one-half mile radius of the project area. The records search failed to identify any previously recorded cultural resources located within the project area.

Other sources consulted during the records search include: the National Register of Historic Places – Listed Properties and Determined Eligible Properties (1988, Computer Listings 1966 through 7/2000 by the National Park Service), the California Register of Historical Resources, the California Points of Historical Interest (1992), the California Inventory of Historic Resources (1976), the California Historical Landmarks (1966), the Directory of Properties in the Historic Property Data File for Glenn County (2004), and the Handbook of North American Indians, Vol. 8, California (1970). Based on the records search and literature review, the project area appeared to be located in an area considered to be moderately sensitive for prehistoric, protohistoric (ethnographic), and historical cultural resources.

3.2 Native American Consultation

In compliance with Section 106 of the National Historic Preservation Act (1966; as amended), the BOR and DWR entered into consultation with the Native American community regarding the effects of the proposed undertaking on traditional cultural properties, sacred sites, or other areas of sensitivity. The results of the ongoing consultation will be disseminated in a separate volume.

4.0 Methods

4.1 Archival and Historical Research

As discussed in the previous chapter, the Archaeological Research Program contacted the Northwest Information Center of the California Historical Resource Information System, California Office of Historic Preservation to conduct a records search and literature review of previous research conducted within or immediately adjacent to the current project area. This records search was conducted prior to the initiation of fieldwork to assist crews in relocating previously recorded sites and to help determine the sensitivity of the project area for unrecorded historic and prehistoric cultural resources.

4.2 Field Survey

In May 2001, ARP conducted an intensive pedestrian survey of the entire project area (Figure 1) for indications of unrecorded prehistoric and historic cultural resources that may be impacted by the proposed construction of the New Canal. The level of intensity of effort (i.e., transect spacing) was adapted to slope and other natural constraints. Basins, flats, and moderate slopes received intensive coverage with a maximum of 15 meters between crew members. Survey transects were completed in alignment with compass bearings to ensure complete coverage.

During the field investigation, the ground surface was examined for indications of surface or subsurface cultural resources. The general morphological characteristics of the ground surface were inspected for indications of subsurface deposits or those which may manifest themselves on the surface, such as depressions or ditches. Whenever possible, locations of subsurface exposures caused by such factors as road use, rodent burrows, and erosion were examined for indications of buried deposits. Upon the recognition of darker soil, field crew employed a hand trowel to further investigate the nature of the deposit and to distinguish it from the numerous burn piles observed throughout a number of the tracts. However, no subsurface investigations or artifact collection were undertaken during the archaeological survey.

A hand-held 12-channel Global Positioning System (GPS) receiver was used to determine the Universal Transverse Mercator (UTM) coordinates of the landmark or site datum locations. These coordinates were used in conjunction with the appropriate USGS topographic quadrangle map and aerial photograph to verify ground position.

An Olympus Camedia D-565 Zoom digital camera was used to take a minimum of one overview photograph of each tract surveyed to document the ground surface conditions at the time of survey. The camera was also to be used to supplement illustrations and sketch maps generated during site recording.

Access to private land contained within the survey area was coordinated by the California DWR. Permission for right of entry was obtained from each landowner prior to field survey.

4.3 Site Record Preparation

Procedures for recording cultural resources used in the survey are those required by the California Office of Historic Preservation and documented in *Instructions for Recording Historical Resources* (OHP 1995). Through the use of standardized archaeological site record forms developed by the Department of Parks and Recreation (DPR), important information on site location, description, constituents, features, and other important data is recorded. Isolated artifacts are recorded using a DPR Primary Record and Site Location Map.

OHP advocates density of cultural material as a key criterion for site identification: three associated artifacts at least 45 years of age (DPR 1992:2). A cultural resource was recorded as a site if there were three qualifying objects within 100 m^2 (e.g., 10 x 10 m area). Sites are also defined by the presence of buildings, structures, or features. Minimum documentation required for the recording of archaeological sites is contained with the *Instructions for Recording Historical Resources* (OHP 1995). Copies of all isolate and site records, as well as the final technical report, must be submitted to the Northwest Information Center for inclusion in their files.

5.0 Report of Findings

The New Canal alignment survey area was situated in agricultural lands. In order to avoid disturbance of crops, ARP crews were instructed to take no action to survey in active fields, and thus few free land surfaces were available for investigation. It is estimated that less than 5% of the agricultural lands were physically inspected. However, with the exception of one parcel denied access (011-230-029, 030, 038/Carrancho), at least some portion of the alignment was checked in each parcel between the Sacramento River and Interstate 5, usually along a levee. No portion of the new canal alignment west of the Interstate 5 corridor was granted access for survey. Survey coverage maps are provided in Appendix A.

The cultural resources investigation of the New Canal alignment resulted in the identification of three historical isolates, likely associated with past irrigation activities. These isolates were designated SR-Iso-030A, SR-Iso-031-A, and SR-Iso-032-A. Isolate records are provided in a confidential appendix to this report (Appendix B). No prehistoric or protohistoric cultural resources were identified during the survey.

SR-Iso-030A. This isolate consists of a single palm tree stump with a one-meter diameter, situated near a gated entrance.

SR-Iso-031-A. This isolate represents the remains of a pumping station in an abandoned canal channel. The pump complex consists of a concrete and earth-filled dam with galvanized pipes and the remains of pump machinery (Figure 3). The isolate is situated along an abandoned canal channel, and is likely associated with it.

Figure 3. Isolate SR-031-A.

SR-Iso-032-A. This isolate consists of a water outlet or water control gate located in an abandoned canal channel directly east of SR-Iso-031-A.

The relative absence of cultural resources identified in the project area is partly due to the inability to inspect the entire ground surface of the New Canal alignment project area. It is also likely that the lower encounter rate in the valley zone is dependent on factors affecting archaeological visibility, including predominant alluvial origin of the landscape (leading to site burial) and the long-term impacts of agricultural modification (leading to site obliteration).

6.0 Discussion

Under Section 106, an historical resource is determined significant if it is eligible for listing on the NRHP. Sites are considered eligible for inclusion in the NRHP if they retain integrity of location, design, setting, materials, workmanship, feeling, or association (36.CFR800.5(a)(1)). In addition, a site must meet one of the following four criteria to be eligible:

> a) associated with events that have made a significant contribution to the broad pattern of our history; or
>
> b) associated with the lives of persons significant in our past; or
>
> c) the property embodies the distinct characteristics of a type, period, method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; or
>
> d) have yielded or may be likely to yield, information important in prehistory or history (§60.6).

Similar criteria exist for determinations of significance with respect to the California Environmental Quality Act. Isolates, however, by definition, are not considered archaeological sites. Therefore, rarely do isolates meet any of the criteria for listing on the National or State registers. Because SR-Iso-030-A, SR-Iso-031-A, and SR-032-A are devoid of any historical documentation or associated and temporally diagnostic artifacts, they are not considered potentially significant cultural resources.

7.0 Management Considerations

7.1 Potential Effects and Mitigation Measures

The BOR, DWR, and CALFED are subject to compliance with the National Environmental Policy Act (and subsequently, Section 106 of the National Historic Preservation Act of 1966, as amended) and the California Environmental Quality Act (CEQA; Pub. Res. Code §21000 et seq.).

CEQA applies to both historical resources and archaeological sites, as defined by Article 5, Section 15064.5, Determining the Significance of Impacts to Archeological and Historical Resources. The CEQA process requires review by the California Office of Historic Preservation (OHP)—or one of its local offices in the California Historical Resources Information System—to determine if the project may cause a substantial adverse change to the status of potential cultural resources. An inventory and assessment is required for sensitive locations, and a mitigated Negative Declaration or an Environmental Impact Report (EIR) is required if it is determined that a project may adversely affect significant historic or archaeological resources.

Appendix G of CEQA provides checklists for measuring the environmental effects of proposed projects on cultural resources (Table 1). Mitigations incorporated into project design will reduce the potential impacts of the proposed undertaking to a level that is less than significant. Mitigation measures are presented in the following section.

Table 1. Environmental Effects Checklist for Cultural Resources

Effect[1]	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in ‘15064.5?	□	X	□	□
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to ‘15064.5?	□	X	□	□
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	□	X	□	□

Effect[1]	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	X	☐	☐

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies and other entities working under federal permits or using federal funds to take into account the effect of their undertakings on historic properties. However, the CEQA Guidelines indicate that a public agency also following the Section 106 process (NHPA) may use the documentation prepared under federal guidelines in place of documentation called for under CEQA.

The State Code of Regulations, Guidelines for Implementation of CEQA (Title 14, Chapter 3, Article 5, Section 15064.5f) requires that "as part of the objectives, criteria, and procedures required by Section 21082 of the Public Resources Code, a lead agency should make provisions for historical or unique archaeological resources accidentally discovered during construction. These provisions should include an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site where historical or unique archaeological resource mitigation takes place." Given the differential archaeological sensitivity of the tracts, two mechanisms should be in place for addressing unanticipated discovery of cultural resources during project implementation, as expressed in Mitigation Measures 1 and 2, below.

Mitigation Measure #1: Unanticipated Discovery

- **If subsurface deposits believed to be cultural or paleontological in origin are discovered during restoration, then all work must halt within a 100-foot radius of the discovery and a qualified professional archaeologist retained to evaluate the significance of the find.**

A qualified professional archaeological consultant will meet or exceed the US Secretary of the Interior's Professional Qualification Standards for a prehistoric and historic archaeologist.

Additionally, although no indications of human remains were identified on the surface, subsurface human remains may become evident during construction activities. Applicable procedures should be followed upon the unanticipated discovery of human remains, in accordance with provisions of the State Health and Safety Code, Sections 7052 and 7050.5

and the State Public Resources Code Sections 5097.9 to 5097.99. Sections 7052 and 7050.5 of the State Health and Safety Code define the disturbance of Indian cemeteries as a felony. The code further requires that construction or excavation be stopped in the vicinity of the discovered human remains and the Sheriff and Coroner notified immediately. The Coroner must determine whether the remains are those of a Native American within 48 hours. If the remains are determined to be Native American, the Coroner shall contact the California Native American Heritage Commission within 24 hours. Subsequent procedures shall be followed, according to State Public Resources Code Sections 5097.9 to 5097.99, regarding the role of Native American participation. If the remains are determined to be the result of a crime scene, and not an archaeological site, then appropriate protocol will apply.

Mitigation Measure #2: Human Remains

- **If human remains, or remains that are potentially human, are discovered during project construction or implementation, all work must stop within a 100-foot radius of the find. The construction supervisor must notify the county Sheriff and Coroner immediately, and take appropriate action to ensure that the discovery is protected from further disturbance or vandalism.**

Finally, the California State Code, Sections 6253, 6254, and 6254.10 authorizes state agencies to exclude archaeological site information from public disclosure under the Public Records Act. The Federal Archaeological Resources Protection Act of 1979 (Public Law 96-95, as amended 1988) applies to all Federal fee title lands and Indian lands held in trust by the United States, and specifically dictates that information disclosing the nature and location of any archaeological resource on Federal or Indian lands may not be made available to the public unless it is determined that such disclosure would further the purposes of the Act and not create a risk of harm to the resources or to the site at which such resources are located. In order to follow the State and Federal provisions, and to further ensure the protection of cultural resources on all lands subject to the proposed project, it is essential that the project proponent take steps to make certain that specific archaeological site locations are not disclosed to the public. This includes, but is not limited to, ensuring that portions of this report that provide information about archaeological site locations have strictly limited distribution. Confidential appendices, in particular, contain information not intended for public distribution.

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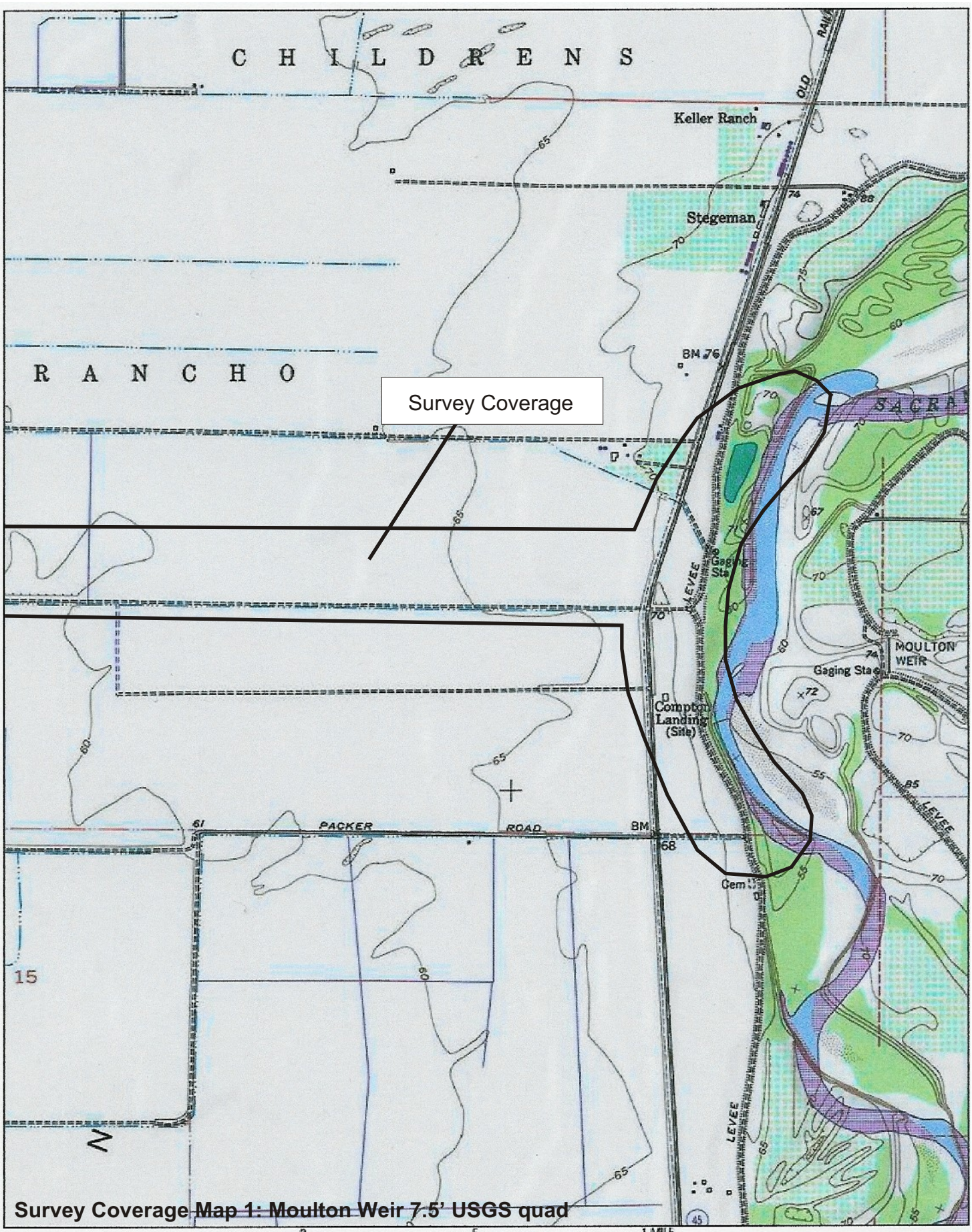
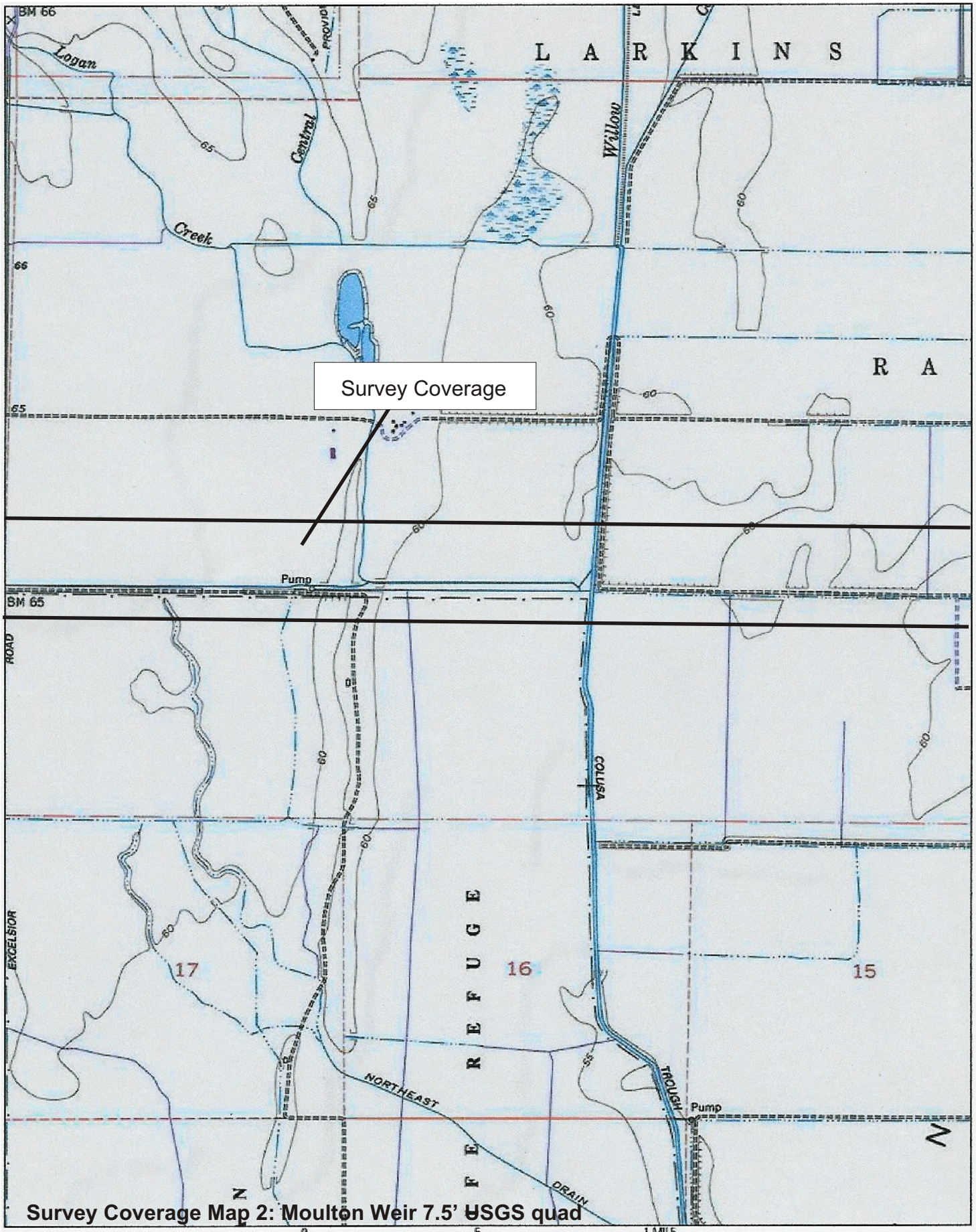
APPENDIX A
Survey Coverage Maps



Survey Coverage Map 1: Moulton Weir 7.5' USGS quad



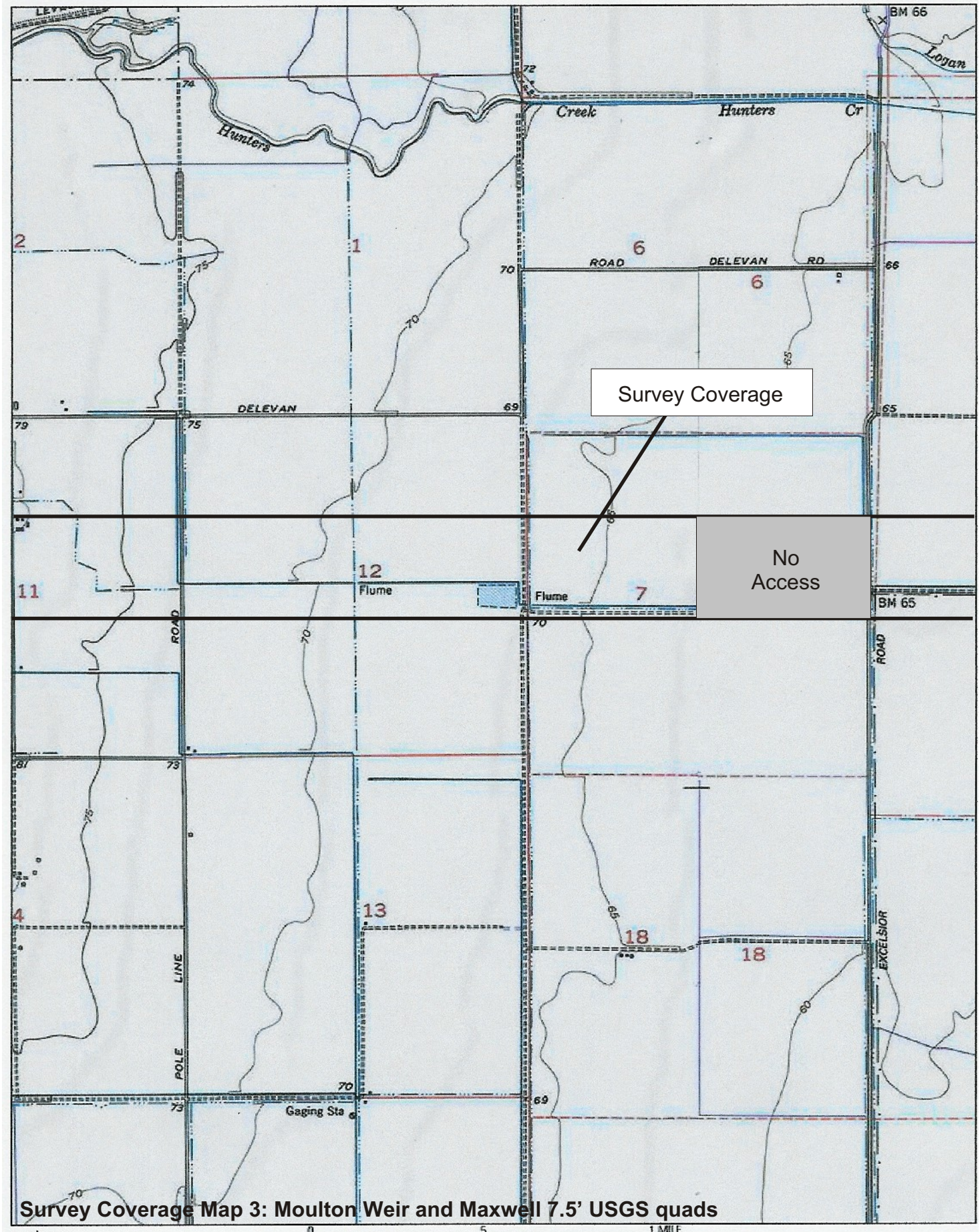
Survey Coverage Map 2: Moulton Weir 7.5' USGS quad

TN / MN 15½°

0 .5 1 MILE

0 1000 FEET 0 500 1000 METERS

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



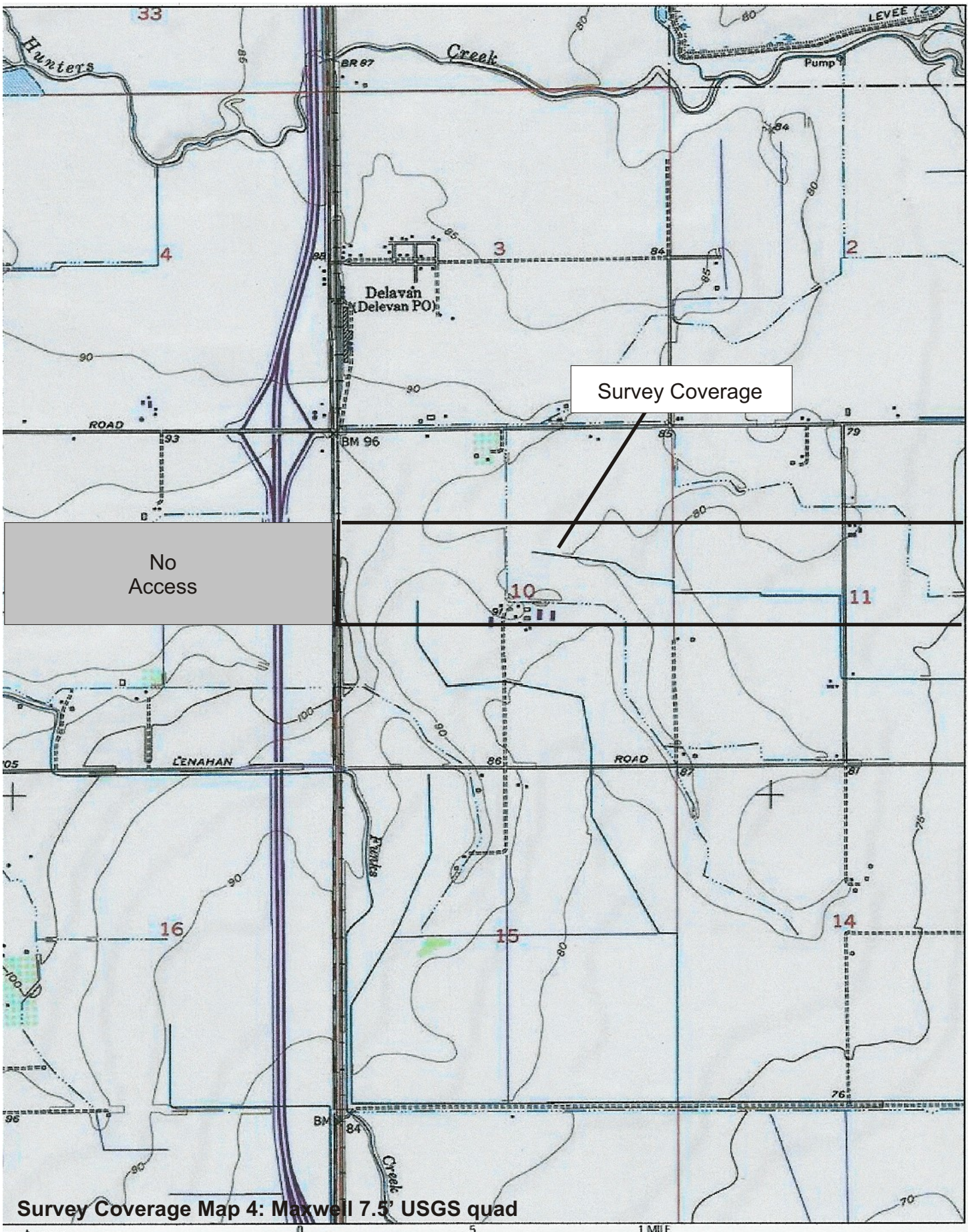
Survey Coverage Map 3: Moulton Weir and Maxwell 7.5' USGS quads

TN 15½° MN

0 .5 1 MILE

0 1000 FEET 0 500 1000 METERS

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Survey Coverage Map 4: Maxwell 7.5' USGS quad

CONFIDENTIAL APPENDIX B
Isolate Records

Note: Confidential Appendices contain information that is restricted from public distribution.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

 ***Resource Name or #:** SR-ISO-030-A

P1. Other Identifier:

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County:** Colusa

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Moulton Weir **Date:** 1991 Larkins Childrens Land Grant

c. Address: City: Zip:

d. UTM: Zone: 10; 0576236 mE/ 4354884 mN ; NAD 27

e. Other Locational Data:

Take Interstate 5 towards the Delevan Wildlife Refuge, Northern California, and exit onto Delevan Road. Proceed east for 3.3 miles. The road joggs to the left (north) for 0.4 mile then turns right (east) for 1 mile. Turn right (south) onto Excelsior and proceed ½ mile to a gated entrance. The isolate is located near the gated entrance.

***P3a. Description:**

This isolate is a palm tree stump with a 1-meter diameter.

***P3b. Resource Attributes:** AH16 (Other)

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☒Other (Isolates, etc.)

P5b. Description of Photo:

***P6. Date Constructed/Age and Sources:** ☒Historic
☐Prehistoric ☐Both

***P7. Owner and Address:**

Delevan Wildlife Refuge
C/O Sacramento N.W.R. Complex
752 County Road 99W
Willows, CA. 95988

***P8. Recorded by:**

Maggie Trumbly, Kristina Crawford, Matt Rives
CSU Chico Archaeological Research Program
Chico, CA. 95929-0401

***P9. Date Recorded:** 5-17-2001

***P10. Survey Type:**

Intensive pedestrian

***P11. Report Citation:** Lisa Westwood and Gregory G. White (2005). NODOSI-Sites Reservoir Cultural Resources Investigation of the New Canal Conveyance Alternative. *California State University, Chico Archaeological Research Program Reports, No. 54*. Prepared for the California Department of Water Resources, Northern District.

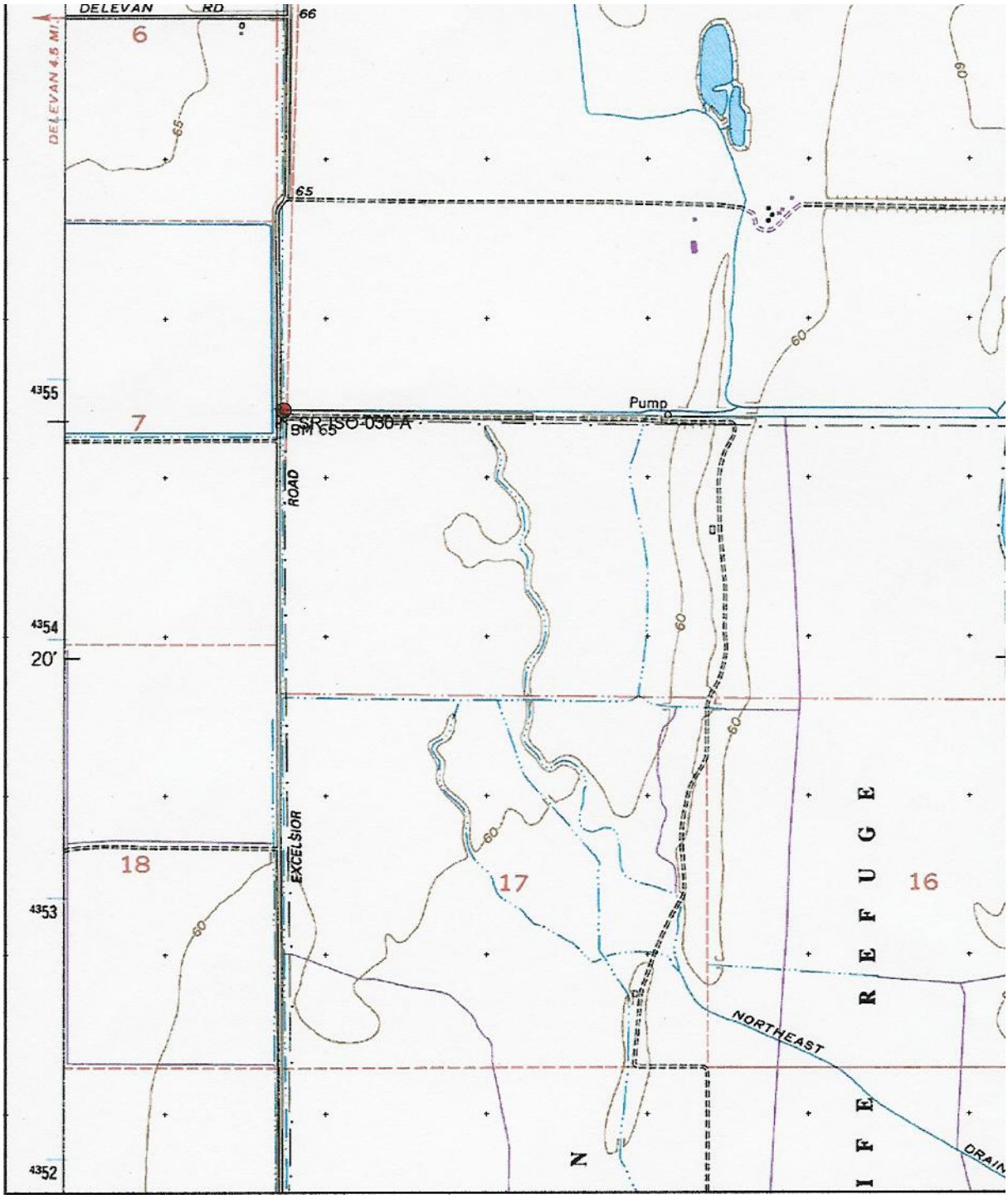
***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** SR-ISO-030-A



***Map Name:** USGS 7.5′ Quad: Moulton Weir, CA.

***Scale:** 1:24,000

***Date of Map:** 1989

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

 ***Resource Name or #:** SR-ISO-031-A

P1. Other Identifier:

***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County:** Colusa

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Moulton Weir **Date:** 1991 Larkins Childrens Land Grant

c. Address: City: Zip:

d. UTM: Zone: 10; 0577683 mE/ 4354870 mN; NAD 27

e. Other Locational Data:

Take Interstate 5 towards the Delevan Wildlife Refuge, Northern California, and exit onto Delevan Road. Proceed east for 3.3 miles. The road joggs to the left (north) for 0.4 mile then turns right (east) for 1 mile. Turn right (south) onto Excelsior and proceed ½ mile to a gated entrance. Turn left (east) continue 0.4 mile. The isolate is located along an abandoned canal channel.

***P3a. Description:**

This isolate is the remains of a pumping station in an abandoned canal channel. The pump complex consists of a concrete and earth-filed dam with galvanized pipes, and the remains of pump machinery.

***P3b. Resource Attributes:** AH6 (Water Conveyance)

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☒Other (Isolates, etc.)

P5b. Description of Photo: Overview of cement structure, pipes, and pump remains. N/W view

***P6. Date Constructed/Age and Sources:**
☒Historic
☐Prehistoric ☐Both

***P7. Owner and Address:**
Delevan Wildlife Refuge
C/O Sacramento N.W.R. Complex
752 County Road 99W
Willows, CA. 95988

***P8. Recorded by:**
Maggie Trumbly, Kristina Crawford, Matt Rives
CSU Chico Archaeological Research Program
Chico, CA. 95929-0401

***P9. Date Recorded:** 5-17-2001

***P10. Survey Type:**
Intensive Pedestrian

***P11. Report Citation:** Lisa Westwood and Gregory G. White (2005). NODOSI-Sites Reservoir Cultural Resources Investigation of the New Canal Conveyance Alternative. *California State University, Chico Archaeological Research Program Reports, No. 54*. Prepared for the California Department of Water Resources, Northern District.

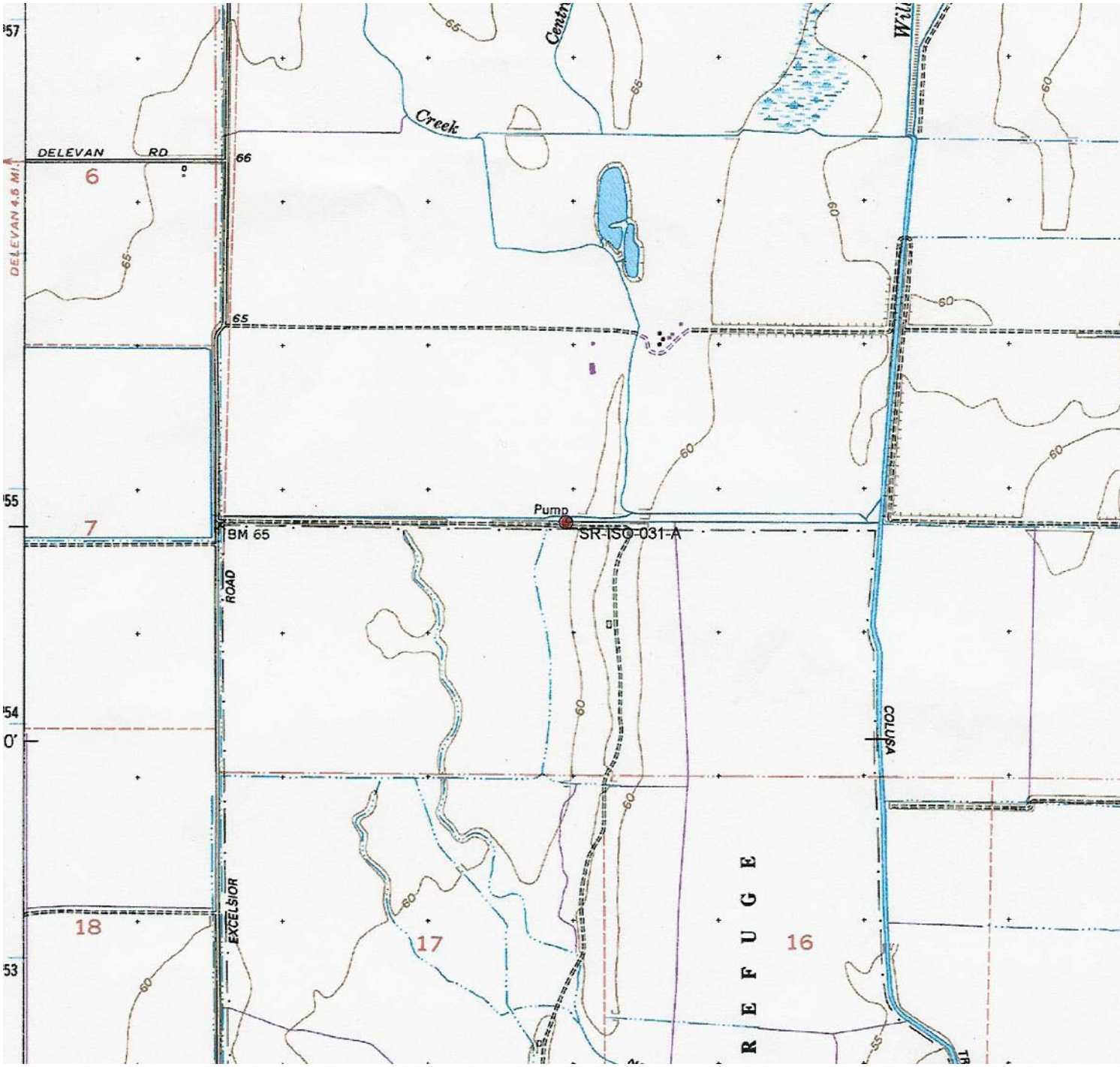
***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** SR-ISO-031-A



***Map Name:** USGS 7.5′ Quad Moulton Weir, CA.

***Scale:** 1:24,000

***Date of Map:** 1989

***Required information**

State of California-The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**

PRIMARY RECORD

Trinomial
NRHP Status Code
Other Listings
Review Code Reviewer Date

Page 1 **of** 2 ***Resource Name or #:** SR-ISO-032-A

P1. Other Identifier:
***P2. Location:** (**Not for Publication** (**Unrestricted** ***a. County:** Colusa
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Moulton Weir **Date:** 1991 Larkins Childrens Land Grant
c. Address: City: Zip:
d. UTM: Zone: 10; 0577683 mE/ 4354870 mN
Take Interstate 5 towards the Delevan Wildlife Refuge, Northern California, and exit onto Delevan Road. Proceed east for a distance of 3.3 miles. The road joggs to the left (north) for 0.4 mile then turns right (east) for 1 mile. Turn right (south) onto Excelsior and proceed ½ mile to a gated entrance. The isolate is located near the entrance of the wildlife refuge within the confines of the Larkins Childrens Rancho, along an abandoned canal channel directly east of ER-ISO-031-A, pump station.

***P3a. Description:**
This isolate is a water outlet or water control gate located in an abandoned canal channel.

***P3b. Resource Attributes:** AH6 (Water Conveyance)
*** P4. Resources Present:** ☐Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☒Other (Isolates, etc.)
P5b. Description of Photo:

***P6. Date Constructed/Age and Sources:** ☒Historic
☐Prehistoric ☐Both

***P7. Owner and Address:**
Delevan Wildlife Refuge
C/O Sacramento N.W.R. Complex
752 County Road 99W
Willows, CA. 95988

***P8. Recorded by:**
Maggie Trumbly, Kristina Crawford, Matt Rives
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Chico, CA. 95929-0401

***P9. Date Recorded:** 5-17-2001
***P10. Survey Type:**
Intensive Pedestrian

***P11. Report Citation:** Lisa Westwood and Gregory G. White (2005). NODOSI-Sites Reservoir Cultural Resources Investigation of the New Canal Conveyance Alternative. *California State University, Chico Archaeological Research Program Reports, No. 54*. Prepared for the California Department of Water Resources, Northern District.

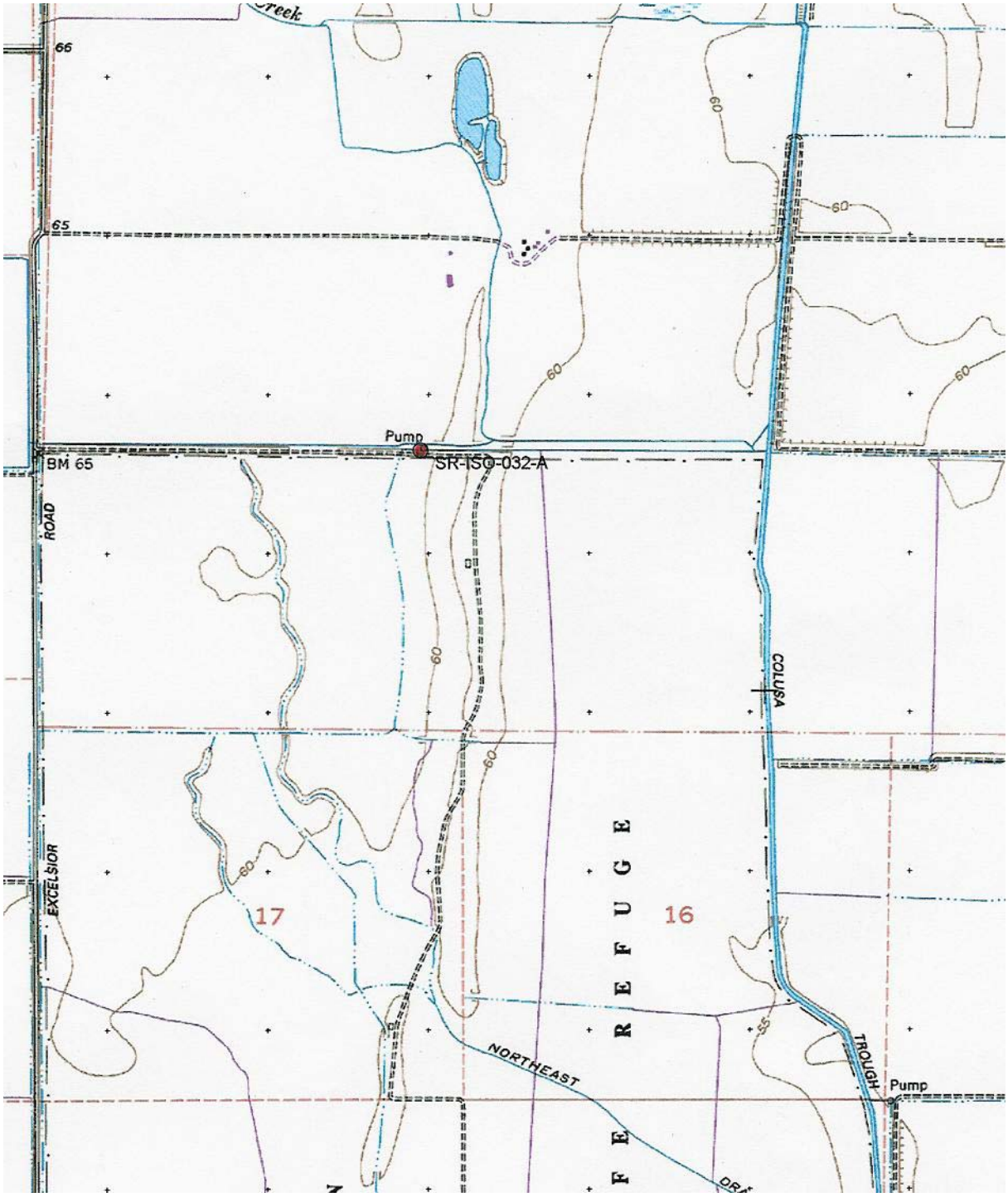
***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** SR-ISO-032-A



***Map Name:** USGS 7.5′ Quad: Moulton Weir, CA.

***Scale:** 1:24,000

***Date of Map:** 1989

DPR 523J (1/95)

***Required information**