APPENDIX E

LAKE WOHLFORD DAM REPLACEMENT PROJECT HISTORIC RESOURCES SURVEY REPORT

HISTORIC RESOURCES SURVEY REPORT FOR THE LAKE WOHLFORD DAM REPLACEMENT PROJECT ESCONDIDO, SAN DIEGO COUNTY, CALIFORNIA

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USGS Quadrangle: Valley Center, Rodriguez Mountain 7.5"

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EXECUTIVE SUMMARY

The Lake Wohlford Dam Replacement Project (project) is located in an unincorporated area of northern San Diego County, northeast of Escondido, on property that is owned by the City of Escondido (City). A 2007 seismic analysis of the dam identified a stability concern for the raised portion of the dam in the event of a major earthquake. As a result, the City reduced the reservoir's water level to limit the risk of a potential failure. The water level reduction decreased the reservoir's capacity to approximately 40% of its prior capacity. The City is planning to construct a replacement dam immediately downstream (west) of the existing dam, and partially deconstruct the existing dam. Design is currently underway. Replacing the dam requires replacement or modification of the existing dam's outlet tower and associated pipes beneath the dam. To accommodate the replacement dam's configuration, the City has also proposed realignment of the portion of Oakvale Road that passes the southern dam abutment as a separate project. This portion of the road will be realigned south of its current location, requiring excavation into the adjacent hillside.

A historic resources study for the project was conducted to comply with National Environmental Policy Act, the National Historic Preservation Act (NHPA), and the California Environmental Quality Act (CEQA). This study included archival research, including a records search conducted at the South Coastal Information Center (SCIC), and reconnaissance and intensive survey of the project Area of Potential Effects (APE). The APE encompasses built environment resources that may be potentially affected by the dam replacement, realignment of Oakvale Road, and the raised water levels following dam replacement.

One resource, the Lake Wohlford Dam, was identified and evaluated as a result of the historic resources study. The dam, a modified rock-fill and hydraulic fill structure, was built in 1895 and modified in 1924. The dam was part of the Escondido Irrigation District (EID) water system that supported some agricultural development, but EID failed by 1905. Although it is associated with Alvin Webster Wohlford, arguably an important historical person in Escondido, the dam itself is not directly illustrative of Wohlford's efforts to financially revive the EID's failing water system, establish the Escondido Mutual Water Company in 1905, and work on funding and agreements for the system upgrades completed in 1924. The rock-fill dam was a common type, and it is not considered an important example of a specific type of construction or the work of a master. The dam is well documented, and as a resource, the dam is not likely to yield further information pertaining to history. It does not meet NRHP or CRHR eligibility criteria. Besides this evaluation, the Lake Wohlford Dam does not retain sufficient integrity for listing. The dam as it appears currently does not reflect the 1895 design or period of significance. It is not considered a historic property for the purposes of NEPA/NHPA or a historical resource for the purposes of CEQA.

INTRODUCTION

PROJECT LOCATION

The Lake Wohlford Dam Replacement Project (project) is located in an unincorporated area of northern San Diego County, northeast of Escondido (Figure 1), on property that is owned by the City of Escondido (City). Lake Wohlford is situated north of State Route 78 and east of Valley Parkway/Valley Center Road. The majority of the project is located in Township 11 South, Range 1 West, Sections 32–34, with portions in Township 12 South, Range 1 West, Sections 4 and 5, on the U.S. Geological Survey (USGS) 7.5-minute Valley Center and Rodriguez Mountain quadrangles (Figure 2). The project Area of Potential Effects (APE) encompasses built environment resources that may be potentially directly or indirectly affected by the dam replacement, realignment of Oakvale Road, and the raised water levels following dam replacement (Figure 3).

PROJECT DESCRIPTION

Lake Wohlford Dam was constructed in 1895 to create present-day Lake Wohlford, a reservoir that is an important part of the City's municipal water supply. In 1924, the dam was enlarged and raised using hydraulic fill to expand the reservoir's capacity. A 2007 seismic analysis of the dam identified a stability concern for the raised portion of the dam in the event of a major earthquake. As a result, the City reduced the reservoir's water level to limit the risk of a potential failure. The water level reduction decreased the reservoir's capacity to approximately 40% of its prior capacity. To return the reservoir to its previous height and regain the lost water storage capability, and to improve the dam's seismic safety, the City is planning to construct a replacement dam immediately downstream (west) of the existing dam, and partially deconstruct the existing dam. Design is currently underway. Replacing the dam requires replacement or modification of the existing dam's outlet tower and associated pipes beneath the dam. To accommodate the replacement dam's configuration, the City has proposed the realignment of the portion of Oakvale Road that passes the southern dam abutment as a separate project. This portion of the road will be realigned south of its current location, requiring excavation into the adjacent hillside.

PROJECT PERSONNEL

M. K. Meiser, M.A., who is qualified under the Secretary of Interior's Standards (36 CFR 800 Part 61) for architectural history, is the principal investigator for this study. Ms. Meiser conducted the intensive survey of the project area on August 20, 2013. Colin Recksieck, B.A., Historian, conducted archival research and contributed to this report. Patricia Ambacher, M.A., Architectural Historian, also conducted archival research. Madeline Bowen, M.A., provided senior review of this report. Resumes of key personnel are provided in Attachment A.

Figure 1
Regional Map

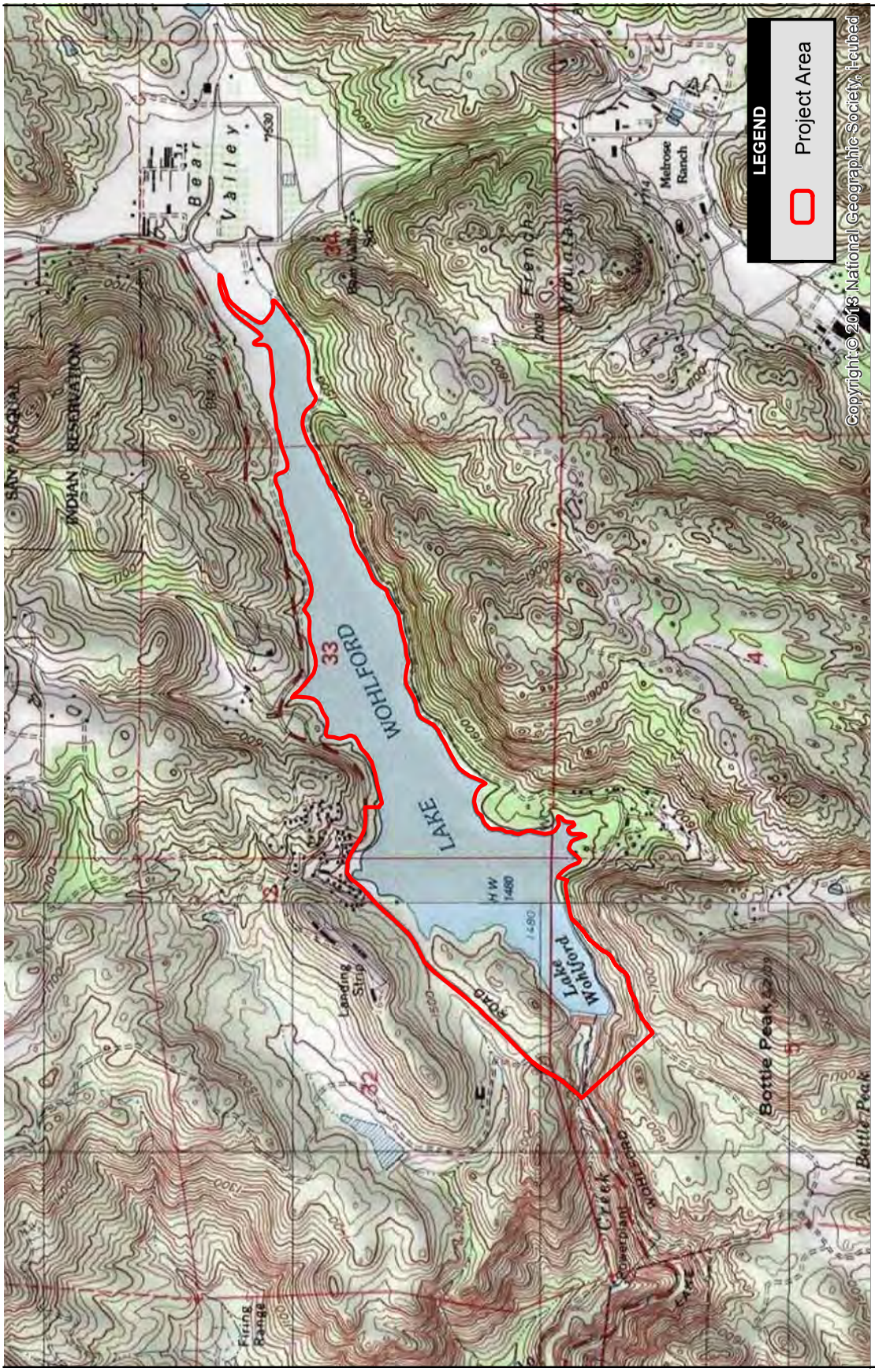

Figure 2
Vicinity Map

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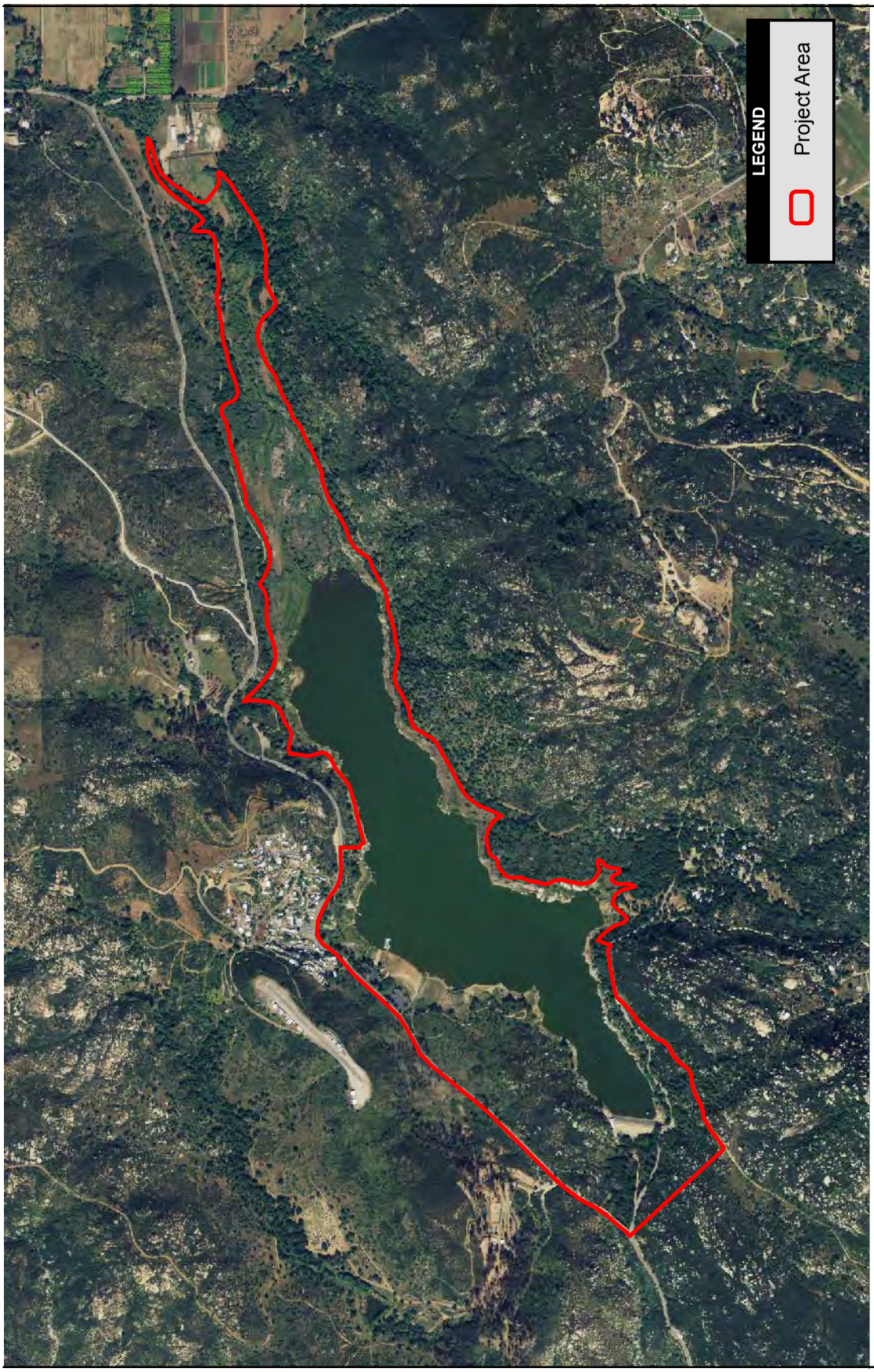

Figure 3
APE Map

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HISTORICAL SETTING

The historical setting specifically focuses on the APE to provide a historical context for any historic resources identified through archival research and/or survey.

HISTORIC PERIOD

Cultural activities within San Diego County between the late 1700s and the present and provide a record of Native American, Spanish, Mexican, and American occupation and land use. A brief overview of the history of San Diego County is presented as a general background to the region. This is followed by a more specific history of the project area.

The Spanish period (1769–1821) represents a time of European exploration and settlement. Dual military and religious contingents established the San Diego Presidio and the Mission San Diego de Alcala. The missions used Native American labor to build the infrastructure needed for European settlement. By circa 1821, traditional Native American lifeways were disrupted and Native American populations were tied economically to the missions. In addition to providing new construction methods and architectural styles, the mission system introduced horses, cattle, and other agricultural goods and implements. The cultural systems and institutions established by the Spanish continued to influence the region beyond 1821, when California came under Mexican rule.

The Mexican period (1821–1848) retained many of the Spanish institutions and laws that were already in place in California; however, in 1834, the mission system became secularized. Secularization allowed for increased Mexican settlement in the region, but it also meant that many Native Americans were dispossessed. After secularization, large tracts of land were granted to individuals and families, and a rancho system was established throughout California. Rancho land was used primarily for grazing cattle (Pourade 1963). Cattle ranching dominated the agricultural activities of the ranchos, as the hide and tallow trade within the United States increased during the early part of this period. The Pueblo of San Diego was established at this time, and the Native American population greatly declined. The Mexican period ended when Mexico ceded California to the United States after the Mexican-American War (1846–1848).

Very early in the American period (1848–present), gold was discovered in California. This led to a large influx of settlers to the region. Few Mexican ranchos remained intact because of land claim disputes thereby opening up much of the land for development. Establishment of railroads also opened up much of the country to settlement. The homestead system encouraged American settlement beyond the coastal plain, and the growth and decline of communities occurred in response to an increasing and shifting population, fostering a “boom and bust” cycle. As early as 1868, San Diego was promoted as a natural sanitarium, and many people suffering from tuberculosis came to the area seeking a cure in the moderate climate.

EARLY ESCONDIDO

After the arrival of Spanish explorers, the area that is now Escondido became part of the Spanish mission system. In 1843, the area was part of a rancho (El Rincon del Diablo) granted to Juan Bautista Alvarado, and, in 1860, it was acquired by the Wolfskill brothers who planted vineyards and raised sheep (McGrew 1988). In 1883, much of the area was purchased by the Escondido Company, a group of Stockton speculators that subdivided the property 3 years later. In 1886, a 12,000-acre tract was purchased by a group of investors that formed the Escondido Land and Town Company, which platted the City of Escondido and lobbied for construction of a railroad connection to the coast. Aggressive land promotions during the latter half of the 1880s drew many people to the area, and although growth had slowed considerably during the 1890s because of economic instability, settlers continued to arrive in the back country, establishing small farms and ranches. This migration took a sharp decline with the onset of the Depression during the 1930s, as many of the rural farmers abandoned their farms and moved to urban areas. The number of people living on farms fell 63% during the 1930s, while San Diego County's overall population increased by 38% (Van Wormer and Walter 1991). Nevertheless, farming and ranching continued to be the major focus of Escondido's economy until the 1960s. In the 1960s, avocado farming was the principal agricultural crop. From the 1970s to the present, housing developments have dominated the landscape, subsuming former agricultural lands.

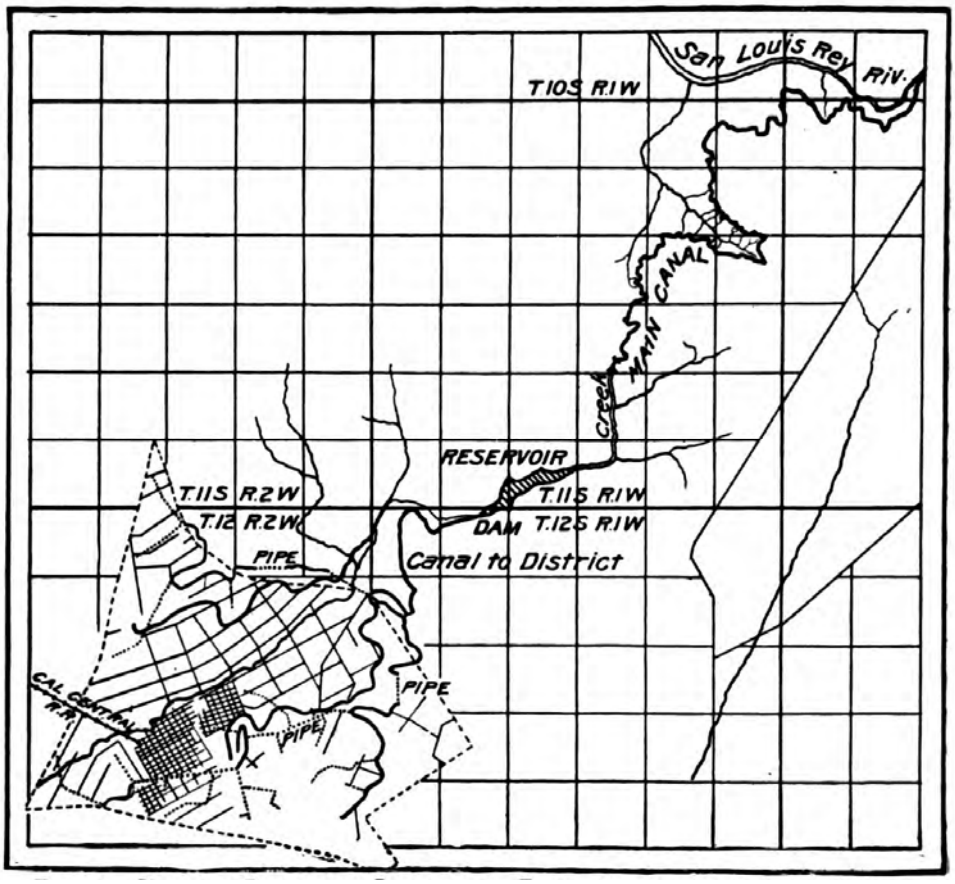
EARLY IRRIGATION AND THE ESCONDIDO IRRIGATION DISTRICT

Prior to the enactment of the District Irrigation Law of California of 1887, also known as the Wright Act, access to water in the state was controlled by property owners who charged farmers and ranchers for supply. The cost of water was exorbitant, making it difficult for the collective development and success of small farms and ranches. In Escondido, several methods for procuring water were employed during its early years, including drilling wells, using steam- or horse-powered pumps for groundwater extraction, and brick-lined cisterns along the Escondido River (Schuyler 1901). An agricultural community, Escondido had vineyards and a burgeoning citrus farming industry.

The San Luis Rey Flume Company, established in the 1880s, sought to capitalize on the lack of an overseeing water authority and was the first company to propose a complex irrigation system to supply Escondido (McGrew 1988). The company sought to create a reservoir at Warner's Ranch with diverted water from the San Luis Rey River, and channel it to Escondido. Although some of the system's framework had been laid, the company was unable to secure enough investment to make such a system possible (Ryan and Ryan 1971). Irrigation remained inefficient, with no central storage facility or source in the area. The Wright Act enabled the formation and bonding of irrigation districts to direct the water supply using a new tax base levied on land values. In general, the law was poorly implemented and was amended in 1889 and 1891, but it led to the incorporation of water districts across California. After its incorporation in 1888, Escondido was in need of well-organized irrigation and quickly established a district (Ryan and Ryan 1971).

The Escondido Irrigation District (EID) was formed in 1889 and encompassed 13,000 acres (Schuyler 1901). For the first few years of its operation, EID could not come to a firm consensus as to how the district would be supplied with water. Engineer James Dix Schuyler was hired to survey potential routes for water conveyance, but the EID Board of Directors could not make a firm decision. In 1893, under the leadership of S.M. Stewart, EID determined that the supply should come from the San Luis Rey River through Bear Valley and the Escondido Creek watershed (McGrew 1988).

EID first improved on existing infrastructure, including infrastructure previously constructed by the San Luis Rey Flume Company, and developed a system that made more efficient use of the Escondido Creek watershed. EID also secured rights to divert water from the San Luis Rey River to supplement the city's supply (Ryan and Ryan 1971). The EID system was designed to channel water from these watersheds via flumes, tunnels and ditches to a newly created reservoir along the Escondido Creek, and thence through a distribution system to agricultural areas and the town of Escondido (Plate 1).



Source: Schuyler 1901

Plate 1. EID irrigation system

In 1894, EID decided to centralize its water storage, expanding its capacity with one large facility. To achieve this, Grant Stewart, son of E.M. Stewart, had the idea to create a dam. The EID board chose a dam site in Bear Valley, two miles east of the district at its nearest point, and at an elevation of 1,300 feet above sea level, or about 650 feet above the town (Schuyler 1901, Ryan and Ryan 1971). Schuyler, an experienced irrigation and dam engineer, may have participated in or consulted on the construction of the dam, but it is unclear if he was the design engineer. W.A. Sickler surveyed for the main canal, which would result in 5.6 miles of conduit consisting of 67,287 feet of ditches, 14,142 feet of wood flume, and 806 feet of granite tunnel, across a "wild, rocky canyon" from the San Luis Rey River through Hellhole Canyon to the dam site (McGrew 1988; Schuyler 1901). With a right-of-way to the San Luis Rey River and the land for the dam site procured, EID hired contractor E.I. Doty and Company to construct the system. Construction began in October 1894.

The Escondido Dam (also the Bear Valley Dam, and later, Lake Wohlford Dam) was the first rock-fill dam to be constructed in California for irrigation storage (Schuyler 1901). The design was a typical rock-fill dam with a facing of horizontal redwood planks, "built with unusual care, and though ragged and unfinished in appearance, it [was] of ample dimensions for the pressures it withstands and [was] reasonably water-tight" (Schuyler 1901). When built, the dam was 76 feet high, 380 feet long at the top, 100 feet long at the bottom, with a 140-foot-wide base, and a 10-foot-wide crest. The dam slope on the water-facing side was ½:1, and the back slope shifted from 1:1 at the top to 1-¼:1 towards the base (Schuyler 1901).

Six thousand cubic yards of the dam wall were courses of stone rubble laid by hand, and approximately 31,000 cubic yards contained granite blocks dumped into place (Plate 2). All of the stone used to build the dam was taken from scattered boulders and protrusions in the canyon within an 800-foot radius of the dam site (Schuyler 1901). To move the fill into place, tramways from the canyon walls and trestles across the dam were constructed. Cars on the tramway tracks carrying fill used gravity to arrive at the dam, were then pushed by hand across the trestle into place and emptied, and then hauled back by horses, which was a slow and expensive process (Schuyler 1901). The fill was placed directly on granite bedrock.

On the water-facing side of the dam (Plate 3), a trench was created in the bedrock for a concrete masonry base foundation for a wood plank facing wall. Vertical 6-inch x 6-inch redwood timbers were embedded in the foundation and into the rock fill, in parallel lines 5 feet 4 inches on center (Schuyler 1901). Horizontal redwood planks were then attached from the bottom up, with 3-inch thick planks on the lower 2/3 of the dam, and 1.5-inch planks at the top. The plank facing was doubled for extra thickness, and the plank courses were staggered and seams were sealed so that the joints were reinforced. As each row was completed, concrete infill was forced into the space between the planks and the rock fill. The total cost of the land and the dam construction was $110,059.09, which was noted at the time as "unusually high" (Schuyler 1901).

Source: City of Escondido

Plate 2. Escondido Dam, downstream slope, 1895

Source: City of Escondido

Plate 3. Escondido Dam, plank facing wall construction, 1895

The distribution system that channeled water from the dam to the district consisted of 0.5 miles of canyon, and 31.5 miles pipes, ditches, flumes, and lateral channels for irrigation. Broken down, it contained 14.5 miles of riveted steel pipes, 2 miles of flumes, 1.5 miles of vitrified clay and cement pipes, and 13.5 miles of open ditches in earth a total of (Schuyler 1901). EID also acquired the domestic water supply system for the town of Escondido that pre-existed the canal system. The cost of the distributing system was $85,727.80, making the total cost of the entire EID system a steep $312,115.49 (Schuyler 1901).

When completed in August 1895, the capacity of the EID system was not sufficient for the projected irrigation needs of the district, and it was estimated that it supplied less than a quarter of what the whole district would eventually require (Schuyler 1901). Originally, most established farms used well water pumped by expensive windmill and motorized methods before the completion of the district system. After the dam was built, citrus, olive and walnut trees were planted extensively within the district, with citrus growers the principal users of the new irrigation system. In 1897, 225 subscribers to the district were cultivating 1,575 acres (Schuyler 1901). While farming was developing quickly in the area, in some cases, orchards were still not receiving a full supply. At the same time, farmers outside of the district were applying for incorporation in EID. As a result of this inadequacy to meet demand, plans to raise the height of the dam and to enlarge the reservoir were quickly conceived (Schuyler 1901). The water-delivery system was also marked by inefficiency, with only half the water at intake making its way to users, due in part to gopher holes, breaks, seepage, and evaporation. EID attempted repairs by replacing piping, lining ditches, and patching portions of the main flume. However, the need for more extensive repairs mounted, and EID was unable to maintain the system.

The overwhelming cost of the system led stockholders to elect a new board of trustees in 1895, including banker Alvin Webster (A.W.) Wohlford. Disgruntled over the cost burden, landowners refused to pay their assessments. At the same time, the Wright Act was under contention and the Escondido Land & Town Company sued EID to enjoin the district from collecting further assessments (McGrew 1988). Without payments for the water supply to finance the operation of the system, the had reservoir dried up by 1898. Escondido's development boom cycle was busted, and for several years, new demands on the system were at a standstill (McGrew 1988). In 1904, a fire destroyed parts of the flume, and crippled operations. Already teetering on the brink of insolvency and collapse, EID was dissolved in 1905 through settlement with the bondholders through foreclosure of its lands and contributions raised by the A.W. Wohlford and the Bank of Escondido (McGrew 1988; Ryan and Ryan 1971).

ESCONDIDO MUTUAL WATER COMPANY

The Escondido Mutual Water Company (EMWC) formed in 1905 as the successor to EID to assume its remaining assets. A.W. Wohlford served on the board of directors. EMWC repaired the conduit, the reservoir was refilled, and the system was in full operation again. Financial responsibilities were still problematic, with new battles waged between EMWC, ranchers, and farmers and the City and the Escondido Land & Town Company (McGrew 1988). From 1908 to 1911, the dispute over new taxes to pay for renovation of the system continued, although financing to reconstruct the main canal and distribution system was raised. The infrastructure

was replaced, and the system was enlarged. Despite this, the City built a rival pumping and distribution system in 1913. By 1923, the City was expanding rapidly, and drilled three more public wells to pump water. The City also purchased EMWC's holdings within the city limits (McGrew 1988).

Despite these disputes, in 1914, EMWC began a new project to provide electricity to Escondido. Orchestrated by A.W. Wohlford, EMWC acquired the City's failing utility company and reached an agreement with the Rincon tribe to permit the construction of a new power plant downstream from the Escondido Dam. The venture to build the Bear Valley power plant was a success and provided cheap electricity to the growing community (McGrew 1988). However, this added to the demand for an increase in the water supply, and renewed attention to rehabilitating the failing distribution system.

A second reservoir site at Warner's Ranch had been identified in the 1890s to supplement the EID's water supply (Schuyler 1901). In 1911, William G. Henshaw and the San Diego County Water Company acquired the site and began negotiations over water rights. In 1922, a contract was signed that secured EMWC's purchase of water from the new reservoir, Lake Henshaw, to be distributed through the EMWC's distribution system. EMWC sold new stock to raise funds for the necessary expansion of the system. Under the agreement, the main canal was improved under the San Diego County Water Company, and the Escondido Dam was expanded under the EMWC. The San Diego County Water Company constructed Lake Henshaw, which allowed for the increase of service to what is now Vista. This resulted in a dual-agency water supply arrangement that persists to the present day.

Reconstruction of the dam included raising the embankment to 95 feet by building a semi-hydraulic fill section on the upstream slope of dam. The parallel embankment was raised along the plank facing. Hydraulic power was used to pump dirt and clay, which, compressed under water, solidified (Plate 4). The new upstream slope was increased to 2½:1, and the downstream slope was 1½:1. The crest was 16 feet wide (Plate 5) (Div. of Water Resources 1932).

In addition to increasing the height and width of the dam embankment, a new spillway (Plate 6) and outlet tower was constructed. The dam reconstruction also required the further improvements to the distribution system, enlargement of the electric power plant, and purchase of farmlands that would be subsumed by the enlargement of the reservoir (McGrew 1988). A new maintenance roadway, Oakvale Road, was also developed around the dam to make for easier access. Reconstruction was completed in 1924, and the reservoir was renamed Lake Wohlford on August 18, 1924, in honor of A.W. Wohlford who died earlier that year.

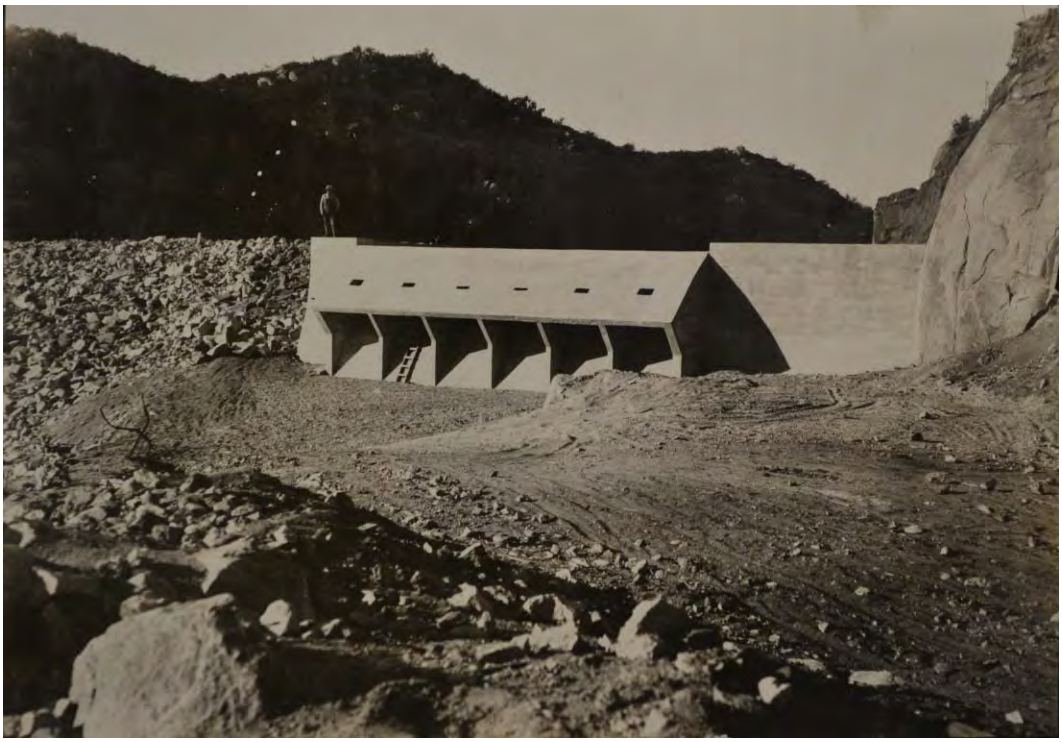
The height of the waterline gradually increased from 73 feet in 1925 to 94.39 feet in 1932. Meanwhile, the dam continued to have issues with leaks and seepage. In 1932, cracks about 3/4-inch wide were observed at the crest. Other factors contributing to seepage included loss of material at the drain pipe, shrinkage and loss of the rock-fill core, failure of the surface materials, and asymmetrical settling (Div. of Water Resources 1932). Repairs were made in 1932 and in subsequent years to combat the persistence of leakage. By 1932, the Lake Wohlford Dam was in the same general form that it is today (Plate 8).

Source: City of Escondido

Plate 4. Escondido Dam, hydraulic fill construction, 1923

Source: City of Escondido

Plate 5. Escondido Dam, new elevation and tower, 1924



Source: City of Escondido

Plate 6. Escondido Dam, concrete spillway, 1924

Source: City of Escondido

Plate 7. Escondido Dam, downstream slope, 1924

Source: City of Escondido

Plate 8. Lake Wohlford Dam, 1932

DISTRICT EXPANSION

Into the post-World War II era, the demands of the booming population and industry affected all of Southern California, including Escondido. Demands for water supply and electricity caused EMWC to look for ways to increase its water supply and electricity generation. EMWC expanded the Bear Valley power plant and developed a second power plant for the Rincon reservation. In 1945, the Vista Irrigation District (VID) acquired the interest of the San Diego County Water Company in Lake Henshaw. By the 1950s, the existing system did not meet demand, and a well field was constructed to deliver groundwater into Lake Henshaw. For the region, the extension of the Colorado River Aqueduct to Southern California was pivotal. However, only public agencies could administer the supply, so the San Diego County Water Authority (SDCWA) was formed in 1944 as a public agency. Water from the Colorado River Aqueduct arrived in 1947. Escondido joined the SDCWA in 1950. Three pipelines were built in the 1950s and 60s to service the area. SDCWA and the Metropolitan Water District of Southern California also annexed the newly formed Rincon del Diablo Municipal Water District in 1954, to sell surplus water from the Colorado River Aqueduct to the EMWC and to secure additional water for the Escondido area just outside of the EMWC's district (McGrew 1988). In 1959, the State Water Project also created a water supply from Northern California. Around the same time,

the Lake Wohlford Resort was established, and the reservoir became a recreational area (Ryan and Ryan 1980).

In the early 1960s, the City proposed to purchase the EMWC's system and holdings. However, in the mid-1960s, a long and controversial legal battle over water rights began between Native American tribes and the EMWC. In several suits filed between the 1960s and the 1980s, the Rincon and La Jolla tribes, through the Bureau of Indian Affairs, filed claims against EMWC, VID, and the City over land and water rights (McGrew 1988). Despite the ongoing battle, the City acquired EMWC in 1970. The City, EMWC and VID systems were joined, sharing the water supply delivery system. The City and VID made major improvements to the water supply system, including the construction of Dixon Lake, the Dixon Dam, and a major treatment plant in the 1970s. In 1980s, the Rincon and La Jolla tribe suits against EMWC and the City were finally settled.

As population and development continued into the 21st century, an ample, safe, and sustainable water supply remained a necessity for the City, the SDCWA, the Metropolitan Water District of Southern California, and the State of California. Cohesive planning for the region's water supply has created cooperation between water districts and agencies. Under the unified system of regional water supply, the City Utilities Department continues to service Escondido through the local distribution system, including the ownership and operation of the Lake Wohlford Dam and reservoir. Perpetual modernization of the system is ongoing.

RESEARCH METHODS

Archival research was conducted for the project to encompass the APE. Several sources were consulted, including records on file at the South Coastal Information Center (SCIC) at San Diego State University, the Water Resources Collections and Archives at the University of California Riverside, historic maps and photographs, historical literature, and other archival collections.

RECORDS SEARCH

A records search for the APE and a one-mile buffer was conducted by Affinis staff in June 2013 at the SCIC. The records search included a review of archaeological, historical, and environmental literature, as well as resource forms and survey maps on file at the SCIC.

Previous Investigations

A records search was obtained from SCIC for the APE and a 1-mile radius around it. The records search maps are included as Confidential Appendix A. The records search shows 28 cultural resources studies were conducted within a 1-mile radius of the project (Table 1). None of these previous studies cover the APE. As noted below, much of the project area was surveyed for cultural resources in 1993, but no report is on file at SCIC, so the extent of that survey area is not known.

Table 1. Cultural Resources Investigations Conducted in the APE

SCIC Report Number (NADB-)	Year	Author	Title
1120055	1979	Adams, Therese E.	A Cultural Resource Survey Report for Paradise Mountain Avocado Ranch. Recon. Submitted to Paradise Mountain Avocado Ranch. Unpublished Report on file at SCIC, San Diego State University, San Diego, CA 92182.
1120133	1975	Berryman, Stanley R.	Archaeological Investigation of: Ernest Thomas Lot Split TPM 11061. Berryman Archaeological Consultants. Submitted to Ernest Thomas. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1120691	1974	Fink, Gary R.	Archaeological Survey for the Proposed Realignment of Valley Center Road, Valley Center, California. San Diego County Engineer Department. Submitted to San Diego County Engineer Department. Unpublished Report on file at South Coastal Information Center, San Diego State University.

SCIC Report Number (NADB-)	Year	Author	Title
1121086	1978	Flower, Douglas, Darcy Ike, and Linda Roth	Archaeological Survey of the Houston Lot Split 66.6 Acres, Valley Center, California. Flower, Ike & Roth Archaeological Consultants. Submitted to Fred C. Houston. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1121541	1979	Thesken, Jay, and Richard L. Carrico	Archaeological Survey of the Proposed Interland Project, Escondido, California. WESTEC Services, Inc. Submitted to HCH and Associates. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1121692	1984	Rector, Carol H., Pat Welch, and Judyth E. Reed	Cultural Resources Inventory for the 1984 and Part of 1985 California Metropolitan Project Area Public Lands Sale Program. Bureau of Land Management. Submitted to Bureau of Land Management. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1122942	1994	Smith, Brian F.	Results of an Archaeological Survey and an Evaluation of Cultural Resources at the East Grove Specific Plan Project. Brian F. Smith and Associates. Submitted to City of Escondido. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1123527	1996	Smith, Brian F., and Larry J. Pierson	Results of an Archaeological Survey of the Action Paint Ball Project San Diego, California (PIA #95017). Brian F. Smith and Associates. Submitted to Richard Steinbaum. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1123691	1999	Brown, Joan C.	A Cultural Resources Reconnaissance of the Valley Center Road-Escondido Portion. BRG Consulting, Inc. Submitted to RMW Paleo Associates, Inc. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1124078	2000	McFarland, Sharon, and Brian F. Smith	An Archaeological Survey for the Hidden Valley Park Project. Brian F. Smith and Associates. Submitted to Stanley Burgis. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1124161	1991	Scientific Resource Surveys, Inc.	Archaeological Survey Report on the Appleby Property Parcel 240-060-37, San Diego County, California. Scientific Resource Surveys, Inc. Submitted to Pasco Engineering. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1125056	2001	Kyle, Carolyn	Cultural Resource Survey for the Ehmcke Project, County of San Diego, California. Kyle Consulting. Submitted to Bill And Nitza Ehmcke. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1126169	1998	Kyle, Carolyn, Dennis Gallegos, and Larry Tift	Historical/Archaeological Survey for the Escondido Police Firing Range. Gallegos & Associates. Submitted to Dudek & Associates. Unpublished Report on file at South Coastal Information Center, San Diego State University.

SCIC Report Number (NADB-)	Year	Author	Title
1127849	2000	Hunt, Kevin, and Brian F. Smith	Archaeological Survey for the Carlson Access Road Improvement Project. Brian Smith & Associates. Submitted to Jeffrey Carlson. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1128588	1980	City of Escondido	Draft Environmental Impact Report for Expansion of Wastewater Treatment Facility. City of Escondido. Submitted to City of Escondido. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1128678	2000	Hunt, Kevin P., and Brian F. Smith	An Archaeological Survey for the Carlson Access Road Improvement Project, San Diego County, California. Brian F. Smith And Associates. Submitted to Jeffrey M. Carlson DDS. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1128726	1978	Hatley, Jay M., and Charles S. Bull	A Cultural Resource Inventory and Impact Analysis for Kelly/Bull Property. Recon. Submitted to Wynn-Hatley Engineering. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1128830	2001	Kyle, Carolyn	Cultural Resource Test for Sites CA-SDI-1066, CA-SDI-1067, CA-SDI-13398, and CA-SDI-13437, Ehmcke Project, County of San Diego, California. Kyle Consulting. Submitted to William & Nitza Ehmcke. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1128831	2001	Kyle, Carolyn	Cultural Resource Survey for the Ehmcke Project, County Of San Diego, California. Kyle Consulting. Submitted to Bill and Nitza Ehmcke. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1128894	2001	Kyle, Carolyn	Cultural Resource Survey for the Ehmcke Project, County of San Diego, California. Kyle Consulting. Submitted to Bill & Nitza Ehmcke. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1129469	1989	Gross, Timothy, and Mary Robbins-Wade	Cultural Resources Survey and Significance Assessment: Ridge Ranch, Valley Center, California. Affinis Environmental Services. Submitted to Ridge Ranch Review Committee. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1129778	1985	Roth, Linda	Archaeological Survey of Slic Ranch 39.54 Acres, San Diego County, California. Roth and Associates. Submitted to Phillips-Reynold's Engineering, Inc. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1130432	2006	Hector, Susan M.	Cultural Resources Sensitivity Analysis for the Carryover Storage and San Vicente Dam Raise Project (CSP) Alternatives Analysis. ASM Affiliates, Inc. Submitted to PBS & J. Unpublished Report on file at South Coastal Information Center, San Diego State University.

SCIC Report Number (NADB-)	Year	Author	Title
1130619	2007	Losee, Carolyn	Cultural Resources Analysis for Verizon Site Bottle Peak: 25484 "A" Lake Wohlford Road, Escondido, CA 92027. Submitted to EBI Consulting. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1131939	2008	Hector, Susan, and Linda Akyuz	Management Plan for Archaeological Resources Within the Hellhole Canyon Preserve, San Diego County. ASM Affiliates. Submitted to County of San Diego Department of Parks and Recreation. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1131972	2008	Cooley, Theodore, and Stacey Jordan	Cultural Resources Phase I Inventory and Evaluation for the Reconstruction of Two Residences And Existing Access Road Grading and Improvements Located Along Wohlford Road, San Diego County, California. Submitted to San Pasqual Band of Diegueno Mission Indians Of California. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1132106	2007	Whatford, J. Charles	Cultural Resource Narrative for the Witch Fire CA-MVU-010432, San Diego County, California. California Department of Forestry and Fire Protection. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1132550	2008	Bonner, Wayne, and Sarah Williams	Cultural Resources Records Search and Site Visit Results For Verizon Wireless Candidate Bottle Peak, 25453 Lake Wohlford Road, Escondido, San Diego County, California. Michael Brandman Associates. Submitted to EBI Consulting. Unpublished Report on file at South Coastal Information Center, San Diego State University.
1133690	2010	Morgan, Nicole B.	ETS #20873, Cultural Resources Survey for the Pole Replacement, P117170, Bear Valley Project, San Diego County, California. HDR/ E2M. Submitted to SDG&E Environmental Services. Unpublished Report on file at South Coastal Information Center, San Diego State University.

Previously Recorded Built Environment Resources

The SCIC records search did not identify any previously recorded historic architectural resources within the APE or the one-mile buffer.

In addition to the SCIC records search, cultural resources staff reviewed archival collections at the following repositories:

- California Department of Water Resources Division of Safety and Dams, Sacramento
- City of Escondido Utilities Department, Escondido

- Escondido History Center, Escondido
- San Diego History Center, San Diego
- Water Resources Collections and Archives at the University of California, Riverside

No previously recorded resources were identified through research. However, the Lake Wohlford Dam was identified as a resource over 50 years old that required further evaluation.

SURVEY METHODS AND RESULTS

AREA OF POTENTIAL EFFECTS

The project APE encompasses built environment resources that may be directly or indirectly affected by the dam replacement, realignment of Oakvale Road, and the raised water levels following dam replacement (see Figure 3).The APE was established as the physical limits of both temporary and permanent project activities, including adjacent areas that may contain potentially historic built environment resources in immediate range of project activities. The APE was surveyed for potential resources.

METHODOLOGY

The survey methodology included review of historic USGS topographic maps and historic photographs, reconnaissance survey of the vicinity, and intensive survey of the APE. Historic architectural resources, defined as standing buildings, structures, or objects more than 50 years old, or with exceptional significance, were recorded on appropriate California Department of Parks and Recreation (DPR) 523 forms. The intensive survey was conducted on August 20, 2013, by Ms. Meiser. One resource, the Lake Wohlford Dam, was identified for further evaluation. The resource was observed, photographed, and evaluated for characteristics, materials, and condition. It was assessed for eligibility for inclusion in the NRHP and the California Register of Historic Resources (CRHR).

For listing in the NRHP or to be considered a historic property, a resource must meet one or more of the following criteria:

A. It is associated with events that have made a significant contribution to the broad patterns of our history;

B. It is associated with the lives of persons significant in our past;

C. It embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. It has yielded, or may be likely to yield, information important in prehistory or history.

For listing in the CRHR or to be considered a historical resource under CEQA, a resource must be significant at the local, state, or national level under one or more of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. It is associated with the lives of persons important to local, California, or national history;

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

All resources eligible for listing must have integrity, which is the authenticity of a historic resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be judged with reference to the particular criteria under which a resource is proposed for nomination.

RESULTS

The historic resources survey identified one resource within the APE, the Lake Wohlford Dam. The resource was recorded on DPR 523 forms (Appendix C).

Lake Wohlford Dam

The Lake Wohlford Dam is located at the western end of Lake Wohlford (Plate 9). It is a modified rock-fill dam, reinforced with hydraulic fill. The core of the dam embankment consists of the original 1895 granite rock fill, with large blocks of granite stacked in place over granite bedrock. Embedded into the original core are timbers that comprised the framework for plank facing, remaining redwood planks from the original construction, and remaining timbers that were part of the construction trestles. The facing of the front slope of the dam consisted of a hydraulic fill embankment covered with stone rubble. There is a concrete parapet wall and asphalt along the length of the crest (Plate 10). At the north end, there is a concrete intake and spillway. At the south end, there is a concrete-block utilitarian shed with a flat roof. Upstream from the dam within the reservoir, there is an approximately 100-foot-tall tower. It is round concrete with a pointed cylindrical roof above the upper intake. The back slope of the dam facing downstream is covered with rock rubble. The dam is currently filled below capacity.

EVALUATION

Originally built in 1895 and enlarged in 1924, the Lake Wohlford Dam (formerly the Bear Valley Dam or Escondido Dam) has local importance associated with the introduction of a necessary water supply to develop and sustain the Escondido community and agricultural area in San Diego County. The dam's history may be divided into two periods, 1895 to 1924, and 1924 to the present, with its period of significance being 1895, the year of its construction.

Source: AECOM

Plate 9. Lake Wohlford Dam, current waterline, 2013

Source: AECOM

Plate 10. Lake Wohlford Dam, crest, 2013

A reliable water supply was crucial to meet the needs of new development and foremost in the minds of Escondido civic leaders in the late 19th century. The concept of diverting water to Escondido was previously attempted in the 1880s, but failed financially. The original dam and reservoir are part of an infrastructure that was developed in the 1890s to make agricultural development affordable by diverting water from the San Luis Rey River through Bear Valley to Escondido. The dam was the first rock-fill dam to be used to impound water for agricultural irrigation use in California. The dam provided a more convenient source than the previously used pumps and cisterns that had been the mainstay for both agricultural and civic use. Because of the dam, more citrus orchards were eventually planted within the district, and agricultural landowners outside of the district applied for inclusion in the irrigation system for access to the resource (Schuyler 1901).

However, at the time it was initially completed in 1895, the dam only had the capacity to service one quarter of the needs projected for the agricultural irrigation district to thrive. It was realized early on that the reservoir and, therefore, the dam would need to be expanded (Schuyler 1901). Overall, it was an excessively expensive, under-performing system, and landowners quickly ceased paying their tax assessments. Without payments for the water supply to finance the operation of the system, the reservoir literally dried up by 1898. Escondido's development boom cycle was busted, and for several years, new demands on the system were at a standstill (McGrew 1988). In 1904, a fire destroyed parts of the flume, and crippled operations. At that time, the district failed and needed complete restructuring. This early failure of the system and the knowledge that the dam and reservoir were inadequate from the time the dam completed indicates that the dam was not pivotal in the initial development of Escondido.

In 1914, the dam allowed for the development of the first electrical power plant that serviced the area. Although the dam provided the water flow for a hydroelectric plant, it was not its main purpose, and several hydroelectric plants were being erected during the late 19th century as the state's population boomed and electricity became a common demand throughout California. The dam itself does not have particular significance for this function.

Efforts to improve the system faced several problems between 1895 and 1922, when a comprehensive expansion of the system, including the dam, began. After the completion of improvements in 1924, the irrigation system more successfully provided a reliable water supply with the supplemental supply from Lake Henshaw. The 1924 dam increased the capacity of the reservoir closer to the initial levels that the district required in 1895. By this time, however, the district needs and the City's needs exceeded the system and new sources were sought. The ever-increasing demand for water eventually led to the creation of a City water system, and a new reservoir, nearby Dixon Lake in 1971.

The irrigation system did provide needed water to support some agricultural development when it was built in 1895, but failed to meet the expectations of a fully developed district, as well as the town of Escondido. Although it was the first rock-fill dam for an irrigation district, the type was used commonly for other purposes and several irrigation districts were being established throughout the state concurrently after the passage of the Wright Act in 1889. Its expansion in

1924 increased the system's capacity, but it was a temporary solution to ever-growing demands. Because the area that this particular dam and infrastructure serviced was limited, and its concept was not unique regionally, it does not achieve the level of significance necessary to meet NRHP Criterion A or CRHR Criterion 1.

The pursuit of a reliable water supply for Escondido that resulted in the construction of the Lake Wohlford Dam is associated with the EID and several individuals who were pivotal in its creation and maintenance. S.M. Stewart led the EID from the idea of creating a dam and reservoir in Bear Valley through its design and construction. S.M. Stewart was a civic leader who served on the board of the EID whose son put forward the Bear Valley dam site for the EID project. Stewart apparently was involved in construction and development. Little is recorded about his contributions to Escondido's history, and he does not appear to be otherwise a significant historic personage.

Lake Wohlford is the namesake of Alvin Webster Wohlford, because Wohlford was instrumental in overseeing EID after it was nearly bankrupt from the original construction of the irrigation system. Wohlford moved to San Diego County from Nebraska in 1891, bought the Bank of Escondido, and started an orchard near Escondido. He largely bankrolled the dam project during his tenure with the EID and the EMWC from 1895 to his death in 1924. The dam was already constructed when he was elected to the EID Board of Trustees in 1895. His efforts to garner support and cooperation from other agencies and developers kept the project in operation after serious setbacks threatened the venture (Warth 2002; McGrew 1988). Wohlford raised the funds to expand the system with new infrastructure, supplemental service from Lake Henshaw, and hydroelectric power operations. Wohlford was an important civic leader in Escondido and was dedicated to the success of the irrigation district.

The cooperative organizations, EID and EMWC, were the developers of the irrigation system, the dam, and Lake Wohlford. While individuals within those organizations, specifically S.M. Stewart and A.W. Wohlford, were important proponents of the development and contributed to important local events, the dam does not meet NRHP Criterion B or CRHR Criterion 2. Criterion B, and, similarly, Criterion 2, applies to properties associated with individuals whose specific contributions to history can be identified and documented. Significant persons are individuals whose activities are demonstrably important within a local, State, or national historic context.

In the case of S.M. Stewart, specific historic contributions beyond his role in the EID are not well documented, and available information concerning his life and career do not indicate that his contributions were otherwise demonstrably important. Stewart was associated with the initial development of the irrigation system and the construction of the dam, but faced backlash from the excessive costs only served on the EID until 1895.

A.W. Wohlford made well-known contributions to Escondido as the leader of the EID and EMWC from 1895 until his death in 1924. He was an influential banker, the owner and president of the Bank of Escondido. He also owned a local orchard. Wohlford's most significant contributions to history were his tenacious determination and actions to make Escondido's irrigation system both functionally and financially successful, with a reliable supply of water

and, later, electricity. At the completion of the dam in 1895, EID was facing massive financial problems due to the expense of its construction and the refusal of landowners to pay their assessments. Wohlford was instrumental in the initial preservation of the failing EID, and later, in establishing the more successful EMWC. His direct association with the dam, however, is not tied to its 1895 construction. He oversaw the operation of the entire irrigation system from 1895 until his death in 1924. He is credited with the success of the otherwise failing irrigation district, and the successful expansion of the system in 1924. His association culminated in the renaming of the reservoir Lake Wohlford in his honor in 1924.

Despite Wohlford's important efforts associated with the irrigation system and the dam, the dam itself is not directly illustrative of Wohlford's historical achievements in financially reviving the EID's failing system, establishing the EMWC in 1905, and working on funding necessary expansions to the system with supplemental water from Lake Henshaw in 1924. The naming of Lake Wohlford was a significant commemoration of his contributions, but to meet the criteria, the resource should illustrate rather than commemorate Wohlford's achievements. Therefore, the dam does not meet NRHP Criterion B or CRHR Criterion 2.

The Lake Wohlford Dam was the first rock-fill dam used for agricultural purposes in California (Schuyler 1901). The type originated in Northern California in the mid-1800s when prospecting led to the creation of regulated water supplies in remote and rocky areas. While innovative for the purpose of irrigation, rock-fill dams were common at the time, and the design itself was not unusual. Its rock materials were extracted from the immediate site and vicinity, and the redwood planks were suitable for the longevity of the dam. The 1924 hydraulic fill superstructure also used a typical method of erecting dam embankments.

The exact designer of the 1895 dam and the designer of the 1924 expansion are undetermined, although the historical record suggests that the original engineer was James Dix Schuyler (Ryan and Ryan 1971). Schuyler originally surveyed the dam site and was well-known for his work in dam design and construction. Schuyler was an important American engineer whose career was primarily dedicated to railroad and dam construction. Born in 1848, in Ithaca, New York, Schuyler worked on the Kansas Pacific Railway, the Denver and Rio Grande Railroad, the North Pacific Coast Railroad, the Stockton and Ione Railroad, and in Mexico, the Sinaloa and Durango Railroad. He made the first survey of Colorado Springs. In 1877, he became Chief Assistant State Engineer in the Central Valley, shifting his focus to irrigation projects. From 1887 to 1891, he supervised construction of Sweetwater Dam in San Diego County and designed and supervised construction of Hemet Dam in Riverside County. His expertise became hydraulics, particularly in their application to create dams. He designed and consulted on several water works projects, including the Owens River project for Los Angeles, the Twin Falls Canal, the American Beet Sugar Company's irrigation system, and the Gatun Dam at the Panama Canal. He designed and consulted on both irrigation and hydroelectric dams. He also practiced in Japan, Hawaii, Canada, and Mexico. His book, *Reservoirs for Irrigation, Water Power, and Domestic Water Supply* (1st edition, 1901; 2nd edition, 1908), was an important reference in engineering literature, within which, the Escondido Dam (Lake Wohlford Dam) is an example of a rock-fill dam that he described and illustrated in detail. He also contributed a seminal paper to the American Society of Civil Engineers in 1907 in which he advocated for the use of hydraulic fill

in dam construction and provided several important examples of projects on which he consulted (Schuyler 1907). Schuyler died in 1912.

It is not clear whether Schuyler designed the Escondido Dam as it was constructed in 1895, but it is known that he surveyed its location in Bear Valley and had intimate knowledge of its design and construction. His engineering career had shifted from railroad to irrigation projects in 1877, and he supervised many irrigation systems as the Chief Assistant State Engineer. Schuyler's career in dam design and building was significant, but that significance mainly revolves around his latter career in consulting on hydraulic-fill dam projects. One of his first hydraulic-fill dams was the Lake Frances Dam, built for the Bay Counties Power Company in Yuba County in 1901-1902. He was not the Chief Engineer for many projects, but he consulted on several milestone projects including the Waialua Dam in Hawaii and the Gatun Dam at the Panama Canal. The Escondido Dam, as built in 1895, would not be considered a significant example of Schuyler's work, were it ascertained that he designed it.

The Lake Wohlford Dam is a locally important structure that physically impounds the water supply, but its design, construction methods, and materials are not exceptional and do not represent a unique type or demonstrate a good example of a specific type of construction. Its association with Schuyler is unclear, but if Schuyler were the principal designer of the dam, it would not represent an important or milestone example of his work. Schuyler was involved in several irrigation projects by the 1890s, and is more known for his later hydraulic works. The engineer responsible for the 1924 expansion is unknown, and the hydraulic-fill supplemental embankment design is not significant. The Lake Wohlford Dam is not eligible under NRHP Criterion C or CRHR Criterion 3.

The dam and its construction are well documented, and as a resource, the dam is not likely to yield further information pertaining to history. It is not eligible under NRHP Criterion D or CRHR Criterion 4. The dam is located in an area known to be archaeologically sensitive, and archaeological resources is the subject of a separate report being prepared for the dam replacement project.

The Lake Wohlford Dam does not meet the NRHP or CRHR criteria, and additionally, it does not retain sufficient integrity for listing. The 1895 rock-fill structure was significantly modified between 1922 and 1924. Alterations include the removal of some, if not all, of the original redwood planking, and the addition of a supplemental hydraulic-fill embankment, tower, and spillway. The dam was raised by approximately 20 feet. Further modifications were made, including the modern addition of a parapet wall, asphalt walkway, and concrete block shed at the crest. The dam as it appears currently does not reflect the 1895 design or period of significance.

SUMMARY

The historic resources survey resulted in the identification of one historic architectural resource within the APE. However, the Lake Wohlford Dam does not reach the level of significance required to meet NRHP or CRHR criteria for listing. While the EID irrigation system, including

the Escondido Dam, succeeded in supporting some agricultural development when it was built in 1895, it failed to meet the full needs of the district and failed financially, almost at its inception. Its expansion in 1924 increased the system's capacity, but it was a temporary solution to ever-growing demands. Because the area that this particular dam and infrastructure serviced was limited, and the concept for a dam to service an irrigation district was not unique regionally after the passage of the Wright Act in 1889, it does not achieve the level of significance necessary to meet NRHP Criterion A or CRHR Criterion 1. Although it is associated with A.W. Wohlford, arguably an important historical person in Escondido, the dam itself is not directly illustrative of Wohlford's efforts to financially revive the EID's failing system, establish the EMWC in 1905, and work on funding and agreements for the system upgrades completed in 1924; therefore, the dam does not meet NRHP Criterion B or CRHR Criterion 2. The rock-fill dam was a common type, and it is not considered an important example of a specific type of construction or the work of a master, potentially J.D. Schuyler, to be eligible under NRHP Criterion C or CRHR Criterion 3. The dam is well documented, and as a resource, the dam is not likely to yield further information pertaining to history. It is not eligible under NRHP Criterion D or CRHR Criterion 4. Besides this evaluation, the Lake Wohlford Dam does not retain sufficient integrity for listing. The dam as it appears currently does not reflect the 1895 design or period of significance. The resource is not eligible for the NRHP or CRHR, and is not considered a historic property for the purposes of NEPA/NHPA or a historical resource for the purposes of CEQA.

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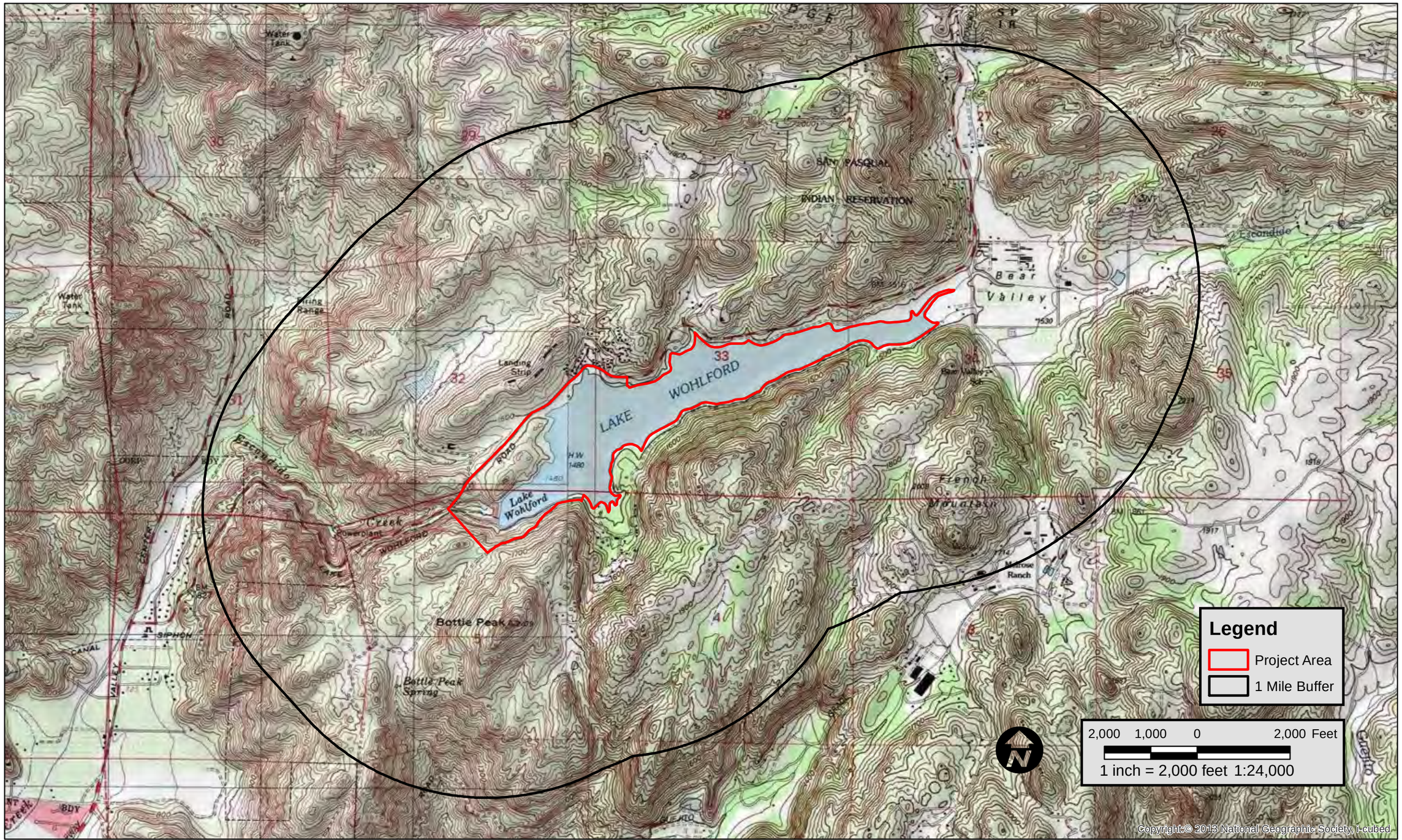
APPENDIX A

APE MAPS



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Lake Wohlford Dam Categorical Exclusion

APPENDIX B

RESUMES

Trina Meiser
Historic Preservation Planner

Education
MA, Historic Preservation Planning, Cornell University, 2003
BA, History, Kenyon College, 1998

Technical Specialties
Architectural History
Historic Preservation Planning
NHPA Section 106 Consultation
CEQA Compliance
Project Management

Trina Meiser is a historic preservation planner and meets the Secretary of Interior's qualifications (36 CFR Part 61) in architectural history and history. Ms. Meiser has more than 10 years of experience in identifying, evaluating, and planning for cultural resources, including historic structures, districts, and landscapes. She specializes in technical analysis to support regulatory compliance, specifically under Section 106 of the National Historic Preservation Act, the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA). She conducts cultural resources studies, including inventory, survey, and evaluation reports; impacts analyses and findings of effect; National Register of Historic Places nominations; Historic Structure Reports; and Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) documents. She consults on a variety of transportation, energy, military, housing, and community projects with clients, designers, and agency representatives. Her experience in historic preservation planning provides a strong understanding of federal, state, and local historic preservation laws, and a thorough knowledge of the Secretary of the Interior's Standards for the Treatment of Historic Properties and their function in historic preservation planning.

Project Experience

Federal Agency Review Projects

Department of State, Potomac Annex Buildings 1, 3-4, and 5 Rehabilitation Projects, Washington, DC
Performed a conditions assessment of Buildings 1, 3-4, and 5 in the Potomac Annex Historic District to identify existing character-defining features and assess their integrity. Prepared analysis of potential impacts and adverse effects that recommend appropriate treatments to maintain the property's integrity as part of rehabilitation efforts.

US Navy, Naval Base Kitsap Bremerton, Keyport, Indian Island, and Bangor Integrated Cultural Resources Management Plans, Bangor, WA
For Naval Facilities Engineering Command (NAVFAC), Atlantic Division, prepared Integrated Cultural Resources Management Plans for facilities at Naval Base Kitsap that outline management policies for World War II- and Cold War-era buildings and surveys under Section 110 of the National Historic Preservation Act. Coordinated with NAVFAC staff to develop best practices for the management of cultural resources on each installation.

National Park Service, Jefferson National Expansion Memorial, St. Louis, MO
Performed research and prepared portions of the historical context the Native American occupation, the French colonial establishment, and the 19th century development of the built environment for the GMP/environmental impact statement..

US Veterans Administration, San Francisco Veterans Affairs Medical Center (SFVAMC) Seismic Upgrade Project, San Francisco, CA
Consulted with architects and designers for the rehabilitation and seismic retrofit of the 1930s-era Art Deco SFVAMC buildings. Evaluated design of new additions and alterations to contributing buildings to a National Register-listed historic district. Engaged in Section 106 consultation with the State Historic Preservation Office.

US Coast Guard, Los Angeles Harbor Light Station Rehabilitation Project, San Pedro, CA
Evaluated potential adverse effects to National Register-listed “Angel’s Gate” lighthouse. Conducted historical research to determine historically significant and character-defining features. As consultant to US Coast Guard, prepared Finding of No Adverse Effect for Section 106 consultation.

US Coast Guard, Cape Arago Lighthouse Mothballing Project, Chief’s Island, OR
Prepared a Conditions Assessment with management recommendations for the Cape Arago Lighthouse as part of a mothballing plan. After assessing building materials of the lighthouse, applied technical guidance to identify appropriate treatments for preliminary maintenance prior to mothballing.

GSA, San Ysidro Land Port of Entry Historic Customs House Rehabilitation Project, San Diego, CA
Consulted with architects to ensure environmental compliance with the Secretary of Interior’s Standards in rehabilitation project design of National Register-listed Historic Customs House. Prepared documentation for Section 106 consultation.

US Navy, Historical Assessment for Ie Shima Training Facility, Ie Shima, Okinawa, Japan
For Naval Facilities Engineering Command (NAVFAC) Pacific, recorded and evaluated ruins of a World War II-era air base, including the foundations of a 19th-century lighthouse and a system of runways. Prepared findings for contribution to a facility-wide cultural resources report.

US Navy, Cultural Resources Survey of Andersen Air Force Base Cantonment Areas and Naval Base Guam, Guam
For Naval Facilities Engineering Command (NAVFAC) Pacific, recorded and evaluated Cold War-era housing, recreational facilities, and infrastructure located at Andersen Air Force Base and Naval Base Guam. Prepared findings for contribution to a facility-wide cultural resources report.

US Navy, Naval Base Point Loma Integrated Cultural Resources Management Plan (ICRMP), San Diego, CA
For Naval Facilities Engineering Command (NAVFAC), Southwest Division, preparing ICRMP for facilities at Naval Base Point Loma and evaluating World War II- and Cold War-era buildings. Coordinating with NAVFAC staff to develop best practices for the management of cultural resources on the naval base.

US Navy, Grow the Force, Camp Pendleton, CA
Evaluated multiple buildings located on Camp Pendleton for eligibility to the National Register of Historic Places. Completed Department of Parks and Recreation forms and incorporated findings in an inventory to support the project’s environmental impact statement.

US Navy, National Register Eligibility Assessment for Naval Base Ventura County, Port Hueneme, CA
For Naval Facilities Engineering Command Southwest, recorded and evaluated 18 buildings at the Naval Construction Training Center at Port Hueneme for eligibility to the National Register. Completed Department of Parks and Recreation forms and incorporated findings in a technical report.

US Navy, National Register Eligibility Assessment for Naval Base China Lake, China Lake, CA
For Naval Facilities Engineering Command (NAVFAC) Southwest, recorded and evaluated various unrecorded buildings in the National Register of Historic Places (NRHP)-eligible China Lake Pilot Plant Historic District at Naval Weapons Station China Lake for eligibility to the NRHP. Completed inventory forms and a technical report.

Federal Emergency Management Agency (FEMA), Hurricane Katrina Recovery, Disaster 1604-DR-MS, Biloxi, MS
Recorded and photo-documented the condition and integrity of properties affected by Hurricane Katrina. Evaluated structures to recommend significance and eligibility for National Register of Historic Places designation. [Prior to AECOM]

FEMA, Hurricane Katrina Recovery, Disaster 1604-DR-MS, Biloxi, MI
Completed project review of restoration and rehabilitation projects for compliance with federal regulations and programmatic agreements coordinated with the Mississippi State Historic Preservation Office. [Prior to AECOM]

Transportation Projects

California High Speed Rail Authority, California High Speed Train Project, Merced to Fresno Segment, Central CA
Inventoried and evaluated more than 400 properties in Merced, Madera, and Fresno Counties in compliance with Section 106. Evaluations were conducted under a Programmatic Agreement between the State Historic Preservation Office and the California High-Speed Train Authority.

Expo Authority, Exposition Corridor Transit Project Phase 2, Los Angeles County, CA
Prepared technical report for the evaluation of historical resources and the cultural resources portion of environmental impact statement/report. Elements for Section 106 consultation included the requesting determination of cultural resources and proposing mitigation measures for the treatment of historic properties.

MTA, South Bay Metro Green Line Extension Project, Los Angeles County, CA
Created survey and evaluation strategy for transportation project through metropolitan Los Angeles County in consultation with the State Historic Preservation Office to meet Section 106 requirements. Prepared technical report for the evaluation of historical resources and the cultural resources portion of the environmental impact statement/report, including mitigation measures for the treatment of evaluated historical resources.

California Department of Transportation (Caltrans), State Route 94 Express Lanes Project, San Diego, CA
As project manager for cultural resources studies, currently planning for historic and archaeological surveys and evaluations of resources within the Area of Potential Effects for a segment of State Route 94 widening in a highly urbanized area of San Diego. Preparing Historic Property Survey Report and Historical Resources Evaluation Report to Caltrans standards.

California Department of Transportation (Caltrans), State Route 76 Mission to Interstate 15 Historical Resources Evaluation Report, San Diego County, CA
Conducted fieldwork to record and evaluate ranching buildings and residences. Prepared the Historical Resources Evaluation Report per Caltrans standards for the evaluation of historical resources for eligibility to the National Register and California Register.

California Department of Transportation (Caltrans), Interstate 5/State Route 56 Project, San Diego, CA
Conducted supplemental cultural resources studies for the project located in San Diego County. Surveyed resources within the Area of Potential Effects to analyze potential impacts to historical resources. Summarized findings in the Historical Resources Evaluation Report and Historic Property Survey Report per Caltrans standards.

Caltrans, Orangethorpe Avenue Grade Separation Project, Orange County, CA
Conducted cultural resources studies for the project located in an urbanized area in the cities of Placentia and Anaheim in northeastern Orange County. Evaluated resources within an Area of Potential Effects to recommend eligibility to the National Register and California Register, and completed the Historical Resources Evaluation Report per Caltrans standards.

Raymond Avenue Grade Separation Project, Orange County, CA
Conducted fieldwork to record and evaluate historic resources within the project's Area of Potential Effects located along a primary arterial highway in Fullerton.

Completed the Cultural Resources Survey Report with recommendations on eligibility to the National Register and California Register.

County of San Bernardino, Shadow Mountain Grade Separation Project, San Bernardino County, CA
Prepared technical report for the evaluation of historical resources along a portion of Historic Route 66 in San Bernardino County. Evaluated more than 10 resources and assessed impacts to historical resources. [2010 – Ongoing]

County of San Diego, South Santa Fe Avenue Reconstruction Project – South Segment, San Diego County, CA
Completed the Historic Property Survey Report and Historical Resources Evaluation Report per Caltrans standards to analyze resources and recommend eligibility to the National Register and California Register. Results were recorded on Department of Parks and Recreation 523 forms.

County of San Diego, Rancho Santa Fe Roundabouts Project, Rancho Santa Fe, CA
Assessed significant impacts to the significant resource, the community of Rancho Santa Fe, in a Historical Resources Evaluation Report Addendum and Historic Property Survey Report. Established the historic character-defining features to be preserved in compliance with the Secretary of Interior's Standards.

County of San Diego, West Mission Bay Drive Bridge Project, San Diego, CA
Conducted supplemental cultural resources studies for the bridge improvement project located in San Diego County. Surveyed resources within the Area of Potential Effects to analyze potential impacts to historical resources. Summarized findings in the Historical Resources Evaluation Report and Historic Property Survey Report per Caltrans standards.

City of Del Mar, North Torrey Pines Bridge Restoration, Del Mar, CA
Consulted with engineers for the restoration of the 1933 North Torrey Pines Bridge to resolve significant impacts to the National Register-eligible resource. Assessed the deterioration of the bridge and established the historic character-defining features to be preserved. Evaluated restoration plans to suggest mitigation measures for its treatment in compliance with the Secretary of Interior's Standards.

City of Temecula, Main Street Bridge Replacement Project, Temecula, CA
Conducted a survey and research of historic resources in Old Town Temecula adjacent to the Main Street Bridge. Results were recorded on Department of Parks and Recreation forms and in the Historic Property Survey Report per Caltrans guidelines.

Local Agency Review Projects

City of San Diego, World Trade Center Rehabilitation Project, San Diego, CA
Evaluated the condition and integrity of the 1928 Art Deco-style San Diego Athletic Club. Prepared documentation in support of CEQA and Section 106 consultation on behalf of the City of San Diego under requirements of the Department of House and Urban Development.

City of San Diego, Hotel Churchill Rehabilitation Project, San Diego, CA
Evaluated the condition and integrity of the former Hotel Churchill in support of CEQA as part of a project to convert the former hotel into an assisted living or low-income housing development.

TCR Properties, Ramona Air Center Environmental Impact Report, Ramona, CA
Conducted a survey and historical research of structures more than 50 years old to evaluate and document historic resources. Results were recorded on Department of Parks and Recreation forms and summarized for inclusion in the project's environmental impact report.

Allen, Matkins, Leck, Gamble, Mallory & Matsis, 301 University Avenue Historical Evaluation and Technical Report, San Diego, CA
Evaluated the condition and integrity of the former supermarket building dating from 1942. Prepared Historic Resources Evaluation Report and survey forms. Summarized findings for inclusion in the 301 University Uptown Environmental Impact Report.

Energy Projects

Abengoa, Mojave Solar Project, Lockhart, CA
Acted as project manager for cultural resources surveys in support of an environmental assessment. Conducted archival research, contact programs, and fieldwork, and

prepared technical report for the evaluation of historical resources and mitigation measures.

NextEra, McCoy Solar Energy Project, Riverside County, CA
Conducted archival research, contact programs, and fieldwork, and authored technical text for the evaluation of historical resources and mitigation measures. Coordinated process with the Bureau of Land Management.

Solar Millennium, Blythe Solar Power Project, Riverside County, CA
Conducted archival research, contact programs, and fieldwork, and prepared technical report for the evaluation of historical resources and mitigation measures. Coordinated process with the Bureau of Land Management.

Imperial Irrigation District, Dixieland 230-kV Transmission Line Project, Imperial County, CA
Conducted archival research and fieldwork to identify potential historic properties for the cultural resources survey. Coordinated with the Bureau of Land Management.

Niland Solar Project, Imperial County, CA
Conducted archival research and fieldwork to identify potential historic properties for the cultural resources survey.

Colin Recksieck
Historian

Education
B.A. History, San Diego State University, 2008

Colin Recksieck is a historian who conducts historical research and administrative tasks. He completed his Bachelors degree with Distinction in History from SDSU in 2008, achieving Deans List Honors two semesters. Mr. Recksieck has both academic and professional experience conducting archival research in history and performing historical analysis, primarily focused on California and the American West. His knowledge of the history of the built environment and planning has allowed him to conduct architectural resource surveys and photographic documentation research. Mr. Recksieck also possesses experience working with archaeological resources, specifically the cataloguing and recordation of artifacts. He possesses excellent research, organizational and data management skills.

Project Experience

Genesis Solar Energy Project, Riverside County, CA
Currently performing a variety of administrative tasks, working closely with the Project Coordinator. Responsibilities include: creating archaeological Department of Parks and Recreation (DPR) 523 forms, reviewing and processing manual timesheets and expense reports of field crew, artifact cataloguing and database maintenance, and assisting the preparation of monthly reports.

CTH G Architecture/History Survey, Rock County, WI
Conducted historical research and assisted in the evaluation of architectural resources, recorded on Wisconsin Department of Transportation Worksheet A and B forms.

Caltrans SR-94 Widening and HOV Lanes Project, San Diego, CA
Conducted historic survey and assisted in the evaluations of resources within the APE for a segment of State Route 94

widening in a highly urbanized area of San Diego. Assisted in preparing HPSR and HRER to Caltrans standards.

California High Speed Rail – Merced to Fresno Segment, CA
Conducted historical research and performed a variety of administrative tasks for AECOM San Diego's resident architectural historians. Assisted in the preparation of the HPSR and HASR to Caltrans Standards.

County of San Diego, DPW Rancho Santa Fe Roundabouts Project, Rancho Santa Fe, CA
Assisted the assessment of significant impacts to the significant resource, the community of Rancho Santa Fe, in an HRER Addendum and HPSR. Established the historic character-defining features to be preserved in compliance with the *Secretary of Interior Standards*.

Sunrise Powerlink, San Diego and Imperial Counties, CA
Assisted AECOM biologists in cataloguing various pre-activity and construction activity field evaluation or visit forms. Also assisted in database maintenance and quality assurance.

OCTA-5 – I-5 (SR-55 and SR-57) HOV Lanes Improvement Project, Orange County, CA
Conducted historical research and performed a variety of administrative tasks for AECOM San Diego's resident architectural historians.

Living Lab, San Diego, CA
Conducted historical research and performed a variety of administrative tasks for AECOM San Diego's resident architectural historians. Assisted in the evaluation of architectural resources, recorded on Department of Parks and Recreation 523 forms.

CPCI, San Diego, CA
Conducted a records search at the South Coastal Information Center (SCIS) housed at San Diego State University. Research was focused on finding previously recorded archaeological resources and reports from San Ysidro and Uptown San Diego.

Shadow Mountain Road Grade Separation Project, San Bernardino County, CA
Conducted historical research and performed a variety of administrative tasks for AECOM San Diego's resident architectural historians. Assisted in the evaluation of architectural resources, recorded on Department of Parks and Recreation 523 forms.

IID Dixieland 230-kV Transmission Line and Substation Expansion Project, Imperial County, CA
Conducted historical research and provided assistance to AECOM archaeologists in the processing of and cataloguing of previously recorded archaeological resources from the project records search.

Pamo Valley Bridge Replacement, San Diego County, CA
Conducted a records search at the San Diego County Department of Public Works (DPW).

Alcazar Yard Historic Site Assessment, Los Angeles, CA
Conducted historical research and performed administrative tasks to aid in the historical assessment of the Alcazar Yard Historic Site for the County of Los Angeles.

APPENDIX C

DPR 523 FORMS

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

PRIMARY RECORD

Primary #_____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

*Resource Name or # (Assigned by recorder) Lake Wohlford Dam

P1. Other Identifier: Escondido Dam, Bear Valley Dam

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

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

*b. USGS 7.5' Quad Rodriguez Mountain Date 1949 T 11S R 1W; ¼ of ¼ of Sec 33; S.B.B.M.
T 12S R 1W; ¼ of ¼ of Sec 4; S.B.B.M.

USGS 7.5' Quad Valley Center Date 1968 T 11S R 1W; ¼ of ¼ of Sec 32; S.B.B.M.
T 12S R 1W; ¼ of ¼ of Sec 5; S.B.B.M.

c. Address Lake Wohlford Road City Escondido Zip 92027

d. UTM: (give more than one for large and/or linear resources) Zone 11; 500242mE/ 3670384mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

The Lake Wohlford Dam is located at the western edge of Lake Wohlford in Bear Valley, which is located approximately 8 miles east of the City of Escondido, in San Diego County.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The Lake Wohlford Dam is located at the western end of Lake Wohlford (**Photograph 1**). It is a modified rock-fill dam, reinforced with hydraulic fill. The core of the dam embankment consists of the original 1895 granite rock fill, with large blocks of granite stacked in place over granite bedrock. Embedded into the original core are timbers that comprised the framework for plank facing, remaining redwood planks from the original construction, and remaining timbers that were part of the construction trestles. The facing of the front slope of the dam consisted of a hydraulic fill embankment covered with stone rubble. There is a concrete parapet wall and asphalt along the length of the crest. At the north end, there is a concrete intake and spillway. At the south end, there is a concrete-block utilitarian shed with a flat roof. Upstream from the dam within the reservoir, there is an approximately 100-foot-tall tower. It is round concrete with a pointed cylindrical roof above the upper intake. The back slope of the dam facing downstream is covered with rock rubble.

*P3b. Resource Attributes: (List attributes and codes) HP21. Dam

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

P5b. Description of Photo: (View, date, accession #) Photograph 1, Camera facing north, August 20, 2013, DSC_1101

*P6. Date Constructed/Age and Sources:
☒ Historic ☐ Prehistoric ☐ Both
1895/City of Escondido

*P7. Owner and Address:
City of Escondido
201 North Broadway
Escondido, CA 92025

*P8. Recorded by: (Name, affiliation, address)
M.K. Meiser
AECOM
1420 Kettner Blvd., Suite 500
San Diego, CA 92101

*P9. Date Recorded: August 20, 2013

*P10. Survey Type: (Describe) Intensive

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Meiser, M.K., 2013. *Historic Resources Survey Report for the Lake Wohlford Dam Replacement Project, Escondido, San Diego County, California.* Prepared for the City of Escondido.

*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) _____

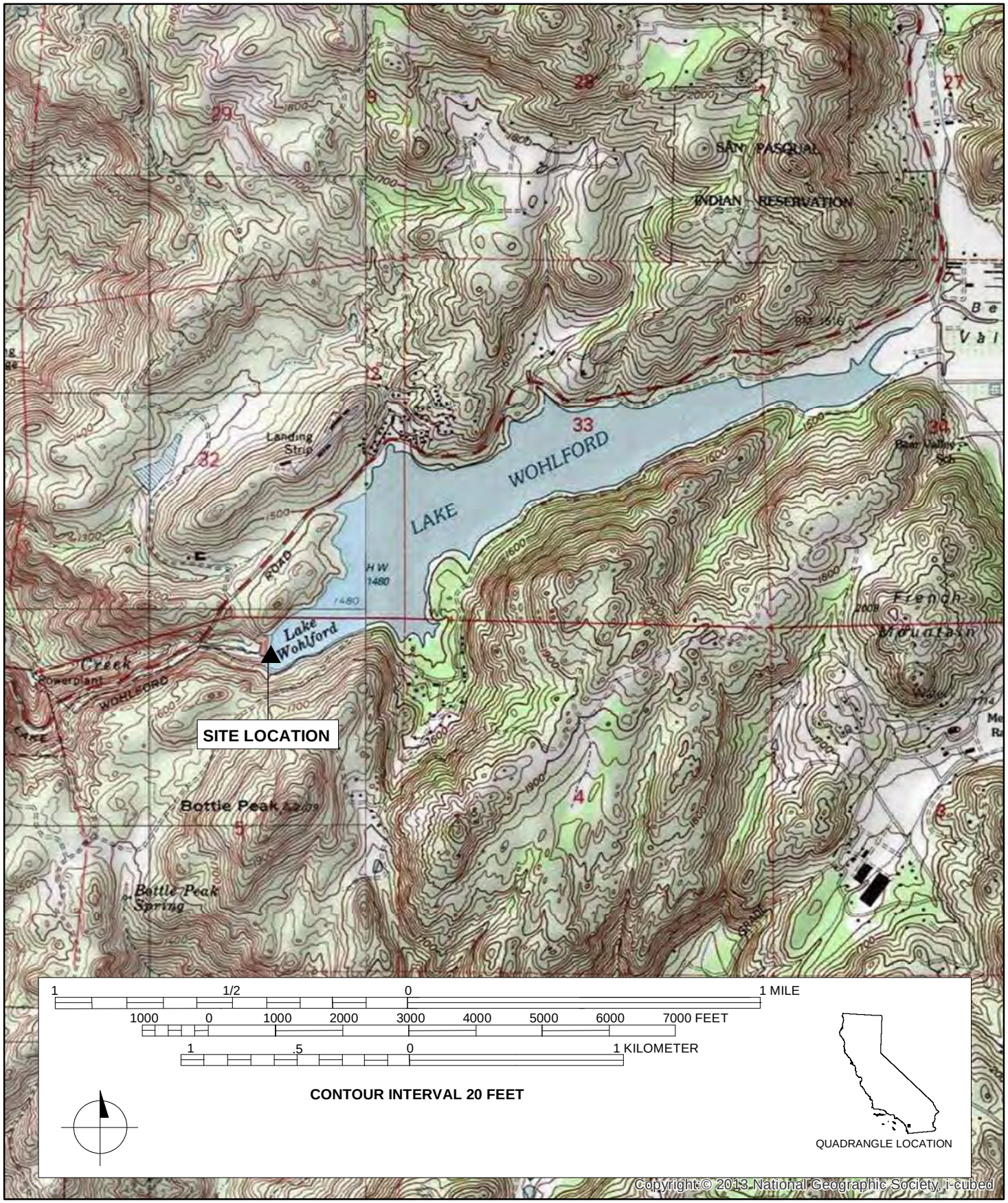
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI #
Trinomial

* Resource Name or # (Assigned by recorder) Lake Wohlford Dam

* Map Name: Valley Center, Calif. 7.5' Quadrangle * Scale: 1:24,000 * Date of Map: 1978



*Required Information

***NRHP Status Code** 6Z
***Resource Name or #** (Assigned by recorder) Lake Wohlford Dam

B1. Historic Name: Escondido Dam, Bear Valley Dam
B2. Common Name: Lake Wohlford Dam
B3. Original Use: Dam B4. Present Use: Dam
***B5. Architectural Style:** Rock-fill and Hydraulic-fill construction
***B6. Construction History:** (Construction date, alteration, and date of alterations) Built in 1895; expansion in 1924; repairs and alterations from 1932 to present (see Continuation Sheet).
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** Lake Wohlford reservoir; canals, tunnels
B9. Architect: Unknown b. Builder: E.I. Doty and Company
***B10. Significance: Theme** Irrigation and Agriculture **Area** Escondido
Period of Significance 1895 **Property Type** Dam **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
See Continuation Sheet.

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**
See Continuation Sheet.

B13. Remarks:

***B14. Evaluator:** M.K. Meiser, M.A.

***Date of Evaluation:** October 29, 2013

(This space reserved for official comments.)

***B6. Construction History:** (continued)

The construction of the 1895 Escondido (Lake Wohlford) Dam was described and illustrated by James Dix Schuyler. The following description of the original construction is based on Schuyler's *Reservoirs for Irrigation, Water Power, and Domestic Water Supply* (1st edition, 1901; 2nd edition, 1908).

The Escondido Irrigation District (EID) designed a water supply system in Bear Valley to channel water via flumes, tunnels and ditches to a new reservoir formed by the construction of the Escondido Dam, and thence through a distribution system to agricultural areas and the town of Escondido (**Figure 1**).

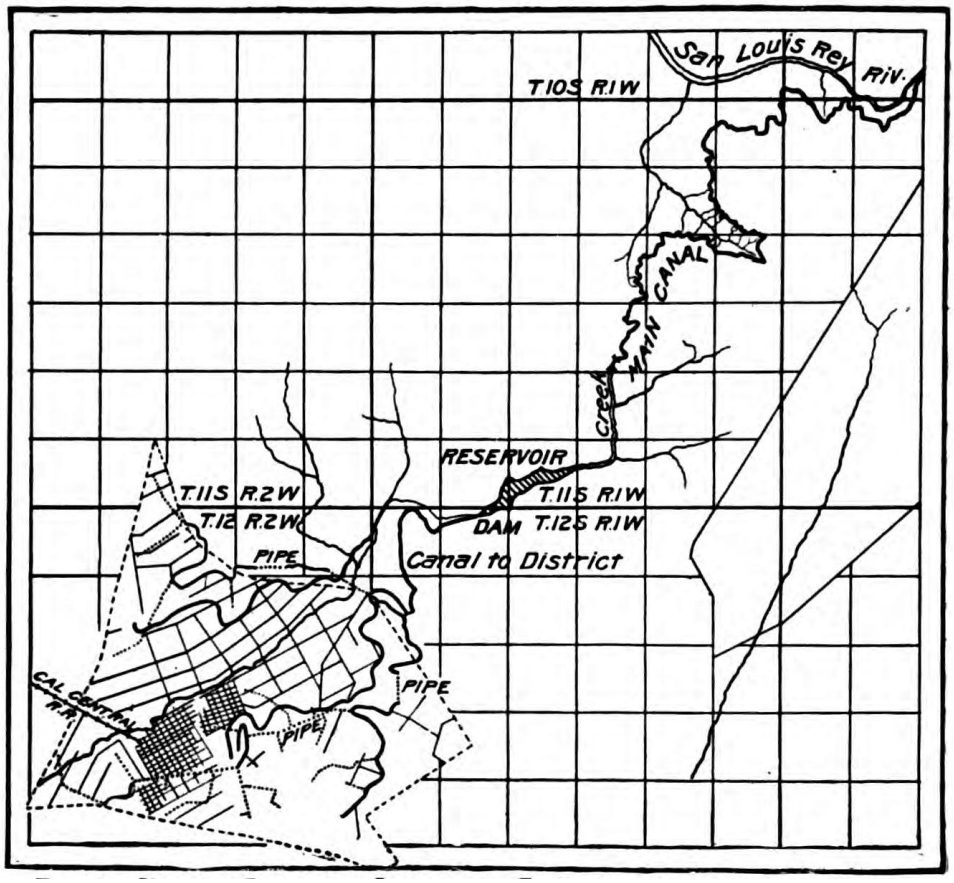


Figure 1. EID irrigation system (source: Schuyler 1901)

In 1894, EID decided to centralize water storage, expanding its capacity with one large facility. To achieve this, Grant Stewart, son of E.M. Stewart, had the idea to create a dam. The EID board chose a dam site in Bear Valley, two miles east of the district at its nearest point, and at an elevation of 1,300 feet above sea level, or about 650 feet above the town (Schuyler 1901, Ryan and Ryan 1971). Schuyler, an experienced irrigation and dam engineer, may have participated in or consulted on the construction of the dam, but it is unclear if he were the design engineer. W.A. Sickler surveyed for the main canal, which would result in 5.6 miles of conduit consisting of 67,287 feet of ditches, 14,142 feet of wood flume, and 806 feet of granite tunnel, across a "wild, rocky canyon" from the San Luis Rey River through the Hellhole Canyon to the dam site (McGrew 1988; Schuyler 1901). With a right-of-way to the San Luis Rey River and the land for the dam site procured, EID hired contractor E.I. Doty and Company to construct the system. Construction began in October 1894.

***B6. Construction History:** (continued)

The Escondido Dam (also the Bear Valley Dam, and later, Lake Wohlford Dam) was the first rock-fill dam to be constructed in California for irrigation storage (Schuyler 1901). The design was a typical rock-fill dam with a facing of horizontal redwood planks, "built with unusual care, and though ragged and unfinished in appearance, it [was] of ample dimensions for the pressures it withstands and [was] reasonably water-tight" (Schuyler 1901). When built, the dam was 76 feet high, 380 feet long at the top, 100 feet long at the bottom, with a 140-foot-wide base, and a 10-foot-wide crest. The dam slope on the water-facing side was ½:1, and the back slope shifted from 1:1 at the top to 1-¼:1 towards the base (Schuyler 1901).

Six thousand cubic yards of the dam wall were courses of stone rubble laid by hand, and approximately 31,000 cubic yards contained granite blocks dumped into place (**Photograph 2**). All of the stone used to build the dam was taken from scattered boulders and protrusions in the canyon within an 800-foot radius of the dame site (Schuyler 1901). To move the fill into place, tramways from the canyon walls and trestles across the dam were constructed. Cars on the tramway tracks carrying fill used gravity to arrive at the dam, were then pushed by hand across the trestle into place and emptied, and then hauled back by horses, which was a slow and expensive process (Schuyler 1901). The fill was placed directly on granite bedrock.

On the water-facing side of the dam (**Photograph 3**), a trench was created in the bedrock for a concrete masonry base foundation for a wood plank facing wall. Vertical 6-inch x 6-inch redwood timbers were embedded in the foundation and into the rock fill, in parallel lines 5 feet 4 inches on center (Schuyler 1901). Horizontal redwood planks were then attached from the bottom up, with 3-inch thick planks on the lower 2/3 of the dam, and 1.5-inch planks at the top. The plank facing was doubled for extra thickness, and the plank courses were staggered and seams were sealed so that the joints were reinforced. As each row was completed, concrete infill was forced into the space between the planks and the rock fill. The total cost of the land and the dam construction was $110,059.09, which was apparently "unusually high" (Schuyler 1901).

Reconstruction of the dam in 1924 included raising the embankment to 95 feet by building a semi-hydraulic fill section on the upstream slope of dam. The parallel embankment was raised along the plank facing. Hydraulic power was used to pump dirt and clay, which, compressed under water, solidified (**Photograph 4**). The new upstream slope was increased to 2½:1, and the downstream slope was 1½:1. The crest was 16 feet wide (**Photograph 5**) (Div. of Water Resources 1932).

In addition to increasing the height and width of the dam embankment, a new spillway and outlet tower was constructed. The dam reconstruction also required the further improvements to the distribution system, enlargement of the electric power plant, and purchase of farmlands that would be subsumed by the enlargement of the reservoir (McGrew 1988). A new maintenance roadway, Oakvale Road, was also developed around the dam to make for easier access. Reconstruction was completed in 1924, and the reservoir was renamed Lake Wohlford on August 18, 1924, in honor of A.W. Wohlford who died earlier that year. Repairs were made in 1932 and in subsequent years to combat the persistence of leakage. By 1932, the Lake Wohlford Dam was in the same general form that it is today (**Photograph 6**). Further changes in the 1980s included the addition of a parapet wall, asphalt walkway, and concrete block shed.

Photograph 2. Escondido Dam, downstream slope, 1895 (source: City of Escondido)

Photograph 3. Escondido Dam, plank facing wall construction, 1895 (source: City of Escondido)

Photograph 4. Escondido Dam, hydraulic fill construction, 1923 (source: City of Escondido)

Photograph 5. Escondido Dam, new elevation and tower, 1924 (source: City of Escondido)

Photograph 6. Lake Wohlford Dam, 1932 (source: City of Escondido)

***B10. Significance:** (continued)

The dam's history may be divided into two periods, 1895 to 1924, and 1924 to the present, with its period of significance being 1895, the year of its construction. The original dam and reservoir are part of an infrastructure that was developed in the 1890s to make agricultural development affordable by diverting water from the San Luis Rey River through Bear Valley to Escondido. The dam was the first rock-fill dam to be used to impound water for agricultural irrigation use in California. The dam provided a more convenient source than the previously used pumps and cisterns that had been the mainstay for both agricultural and civic use. Because of the dam, more citrus orchards were eventually planted within the district, and agricultural landowners outside of the district applied for inclusion in the irrigation system for access to the resource (Schuyler 1901).

However, at the time it was initially completed in 1895, the dam only had the capacity to service one quarter of the needs projected for the agricultural irrigation district to thrive. It was realized early on that the reservoir and, therefore, the dam would need to be expanded (Schuyler 1901). Overall, it was an excessively expensive, under-performing system, and landowners quickly ceased paying their tax assessments. Without payments for the water supply to finance the operation of the system, the reservoir literally dried up by 1898. Escondido's development boom cycle was busted, and for several years, new demands on the system were at a standstill (McGrew 1988). In 1904, a fire destroyed parts of the flume, and crippled operations. At that time, the district failed and needed complete restructuring. This early failure of the system and the knowledge that the dam and reservoir were inadequate from the time the dam completed indicates that the dam was not pivotal in the initial development of Escondido.

After the completion of improvements in 1924, the irrigation system more successfully provided a reliable water supply with the supplemental supply from Lake Henshaw. The 1924 dam increased the capacity of the reservoir closer to the initial levels that the district required in 1895. By this time, however, the district needs and the City's needs exceeded the system and new sources were sought. The ever-increasing demand for water eventually led to the creation of a City water system, and a new reservoir, nearby Dixon Lake in 1971.

***B10. Significance:** (continued)

The irrigation system did provide needed water to support some agricultural development when it was built in 1895, but failed to meet the expectations of a fully developed district, as well as the town of Escondido. Although it was the first rock-fill dam for an irrigation district, the type was used commonly for other purposes and several irrigation districts were being established throughout the state concurrently after the passage of the Wright Act in 1889. Its expansion in 1924 increased the system's capacity, but it was a temporary solution to ever-growing demands. Because the area that this particular dam and infrastructure serviced was limited, and its concept was not unique regionally, it does not achieve the level of significance necessary to meet NRHP Criterion A or CRHR Criterion 1.

The pursuit of a reliable water supply for Escondido that resulted in the construction of the Lake Wohlford Dam is associated with the EID and several individuals who were pivotal in its creation and maintenance. S.M. Stewart led the EID from the idea of creating a dam and reservoir in Bear Valley through its design and construction. S.M. Stewart was a civic leader who served on the board of the EID whose son put forward the Bear Valley dam site for the EID project. Stewart apparently was involved in construction and development. Little is recorded about his contributions to Escondido's history, and he does not appear to be otherwise a significant historic personage.

Lake Wohlford is the namesake of Alvin Webster Wohlford, because Wohlford was instrumental in overseeing EID after it was nearly bankrupt from the original construction of the irrigation system. Wohlford moved to San Diego County from Nebraska in 1891, bought the Bank of Escondido, and started an orchard near Escondido. He largely bankrolled the dam project during his tenure on the EID and the EMWC from 1895 to his death in 1924. The dam was already constructed when he was elected to the EID Board of Trustees in 1895. His efforts to garner support and cooperation from other agencies and developers kept the project in operation after serious setbacks threatened the venture (Warth 2002; McGrew 1988). Wohlford raised the funds to expand the system with new infrastructure, supplemental service from Lake Henshaw, and hydroelectric power operations. Wohlford was an important civic leader in Escondido and was dedicated to the success of the irrigation district.

The cooperative organizations, EID and EMWC, were the developers of the irrigation system, the dam, and Lake Wohlford. While individuals within those organizations, specifically S.M. Stewart and A.W. Wohlford, were important proponents of the development and contributed to important local events, the dam does not meet NRHP Criterion B or CRHR Criterion 2. Criterion B, and, similarly, Criterion 2, applies to properties associated with individuals whose specific contributions to history can be identified and documented. Significant persons are individuals whose activities are demonstrably important within a local, State, or national historic context.

In the case of S.M. Stewart, specific historic contributions beyond his role in the EID are not well documented, and available information concerning his life and career do not indicate that his contributions were otherwise demonstrably important. Stewart was associated with the initial development of the irrigation system and the construction of the dam, but faced backlash from the excessive costs only served on the EID until 1895.

A.W. Wohlford made well-known contributions to Escondido as the leader of the EID and EMWC from 1895 until his death in 1924. He was an influential banker, the owner and president of the Bank of Escondido. He also owned a local orchard. Wohlford's most significant contributions to history were his tenacious determination and actions to make Escondido's irrigation system both functionally and financially successful, with a reliable supply of water and, later, electricity. At the completion of the dam in 1895, EID was facing massive financial problems due to the expense of its construction and the refusal of landowners to pay their assessments. Wohlford was instrumental in the initial preservation of the failing EID, and later, in establishing the more successful EMWC. His direct association with the dam, however, is not tied to its 1895 construction. He oversaw the operation of the entire irrigation system from 1895 until his death in 1924. He is credited with the success of the otherwise failing irrigation district, and the successful expansion of the system in 1924. His association culminated in the renaming of the reservoir Lake Wohlford in his honor in 1924.

***B10. Significance:** (continued)

Despite Wohlford's important efforts associated with the irrigation system and the dam, the dam itself is not directly illustrative of Wohlford's historical achievements in financially reviving the EID's failing system, establishing the EMWC in 1905, and working on funding necessary expansions to the system with supplemental water from Lake Henshaw in 1924. The naming of Lake Wohlford was a significant commemoration of his contributions, but to meet the criteria, the resource should illustrate rather than commemorate Wohlford's achievements. Therefore, the dam does not meet NRHP Criterion B or CRHR Criterion 2.

The Lake Wohlford Dam was the first rock-fill dam used for agricultural purposes in California (Schuyler 1901). The type originated in Northern California in the mid-1800s when prospecting led to the creation of regulated water supplies in remote and rocky areas. While innovative for the purpose of irrigation, rock-fill dams were common at the time, and the design itself was not unusual. Its rock materials were extracted from the immediate site and vicinity, and the redwood planks were suitable for the longevity of the dam. The 1924 hydraulic fill superstructure also used a typical method of erecting dam embankments.

The exact designer of the 1895 dam and the designer of the 1924 expansion are undetermined, although the historical record suggests that the original engineer was Schuyler (Ryan and Ryan 1971). Schuyler originally surveyed the dam site and was well-known for his work in dam design and construction. Schuyler was an important American engineer whose career was primarily dedicated to railroad and dam construction. Born in 1848, in Ithaca, New York, Schuyler worked on the Kansas Pacific Railway, the Denver and Rio Grande Railroad, the North Pacific Coast Railroad, the Stockton and Ione Railroad, and in Mexico, the Sinaloa and Durango Railroad. He made the first survey of Colorado Springs. In 1877, he became Chief Assistant State Engineer in the Central Valley, shifting his focus to irrigation projects. From 1887 to 1891, he supervised construction of Sweetwater Dam in San Diego County and designed and supervised construction of Hemet Dam in Riverside County. His expertise became hydraulics, particularly in their application to create dams. He designed and consulted on several water works projects, including the Owens River project for Los Angeles, the Twin Falls Canal, the American Beet Sugar Company's irrigation system, and the Gatun Dam at the Panama Canal. He designed and consulted on both irrigation and hydroelectric dams. He also practiced in Japan, Hawaii, Canada, and Mexico. He contributed a seminal paper to the American Society of Civil Engineers in 1907 in which he advocated for the use of hydraulic fill in dam construction and provided several important examples of projects on which he consulted (Schuyler 1907). Schuyler died in 1912.

It is not clear whether Schuyler designed the Escondido Dam as it was constructed in 1895, but it is known that he surveyed its location in Bear Valley and had intimate knowledge of its design and construction. His engineering career had shifted from railroad to irrigation projects in 1877, and he supervised many irrigation systems as the Chief Assistant State Engineer. Schuyler's career in dam design and building was significant, but that significance mainly revolves around his latter career in consulting on hydraulic-fill dam projects. One of his first hydraulic-fill dams was the Lake Frances Dam, built for the Bay Counties Power Company in Yuba County in 1901-1902. He was not the Chief Engineer for many projects, but he consulted on several milestone projects including the Waialua Dam in Hawaii and the Gatun Dam at the Panama Canal. The Escondido Dam, as built in 1895, would not be considered a significant example of Schuyler's work, were it ascertained that he designed it.

The Lake Wohlford Dam is a locally important structure that physically impounds the water supply, but its design, construction methods, and materials are not exceptional and do not represent a unique type or demonstrate a good example of a specific type of construction. Its association with Schuyler is unclear, but if Schuyler were the principal designer of the dam, it would not represent an important or milestone example of his work. Schuyler was involved in several irrigation projects by the 1890s, and is more known for his later hydraulic works. The engineer responsible for the 1924 expansion is unknown, and the hydraulic-fill supplemental embankment design is not significant. The Lake Wohlford Dam is not eligible under NRHP Criterion C or CRHR Criterion 3.

***B10. Significance:** (continued)

The dam is located in an archaeologically sensitive area. However, the dam and its construction are well documented, and as a resource, the dam is not likely to yield further information pertaining to history. It is not eligible under NRHP Criterion D or CRHR Criterion 4.

Additionally, it does not retain sufficient integrity for listing. The 1895 rock-fill structure was significantly modified between 1922 and 1924. Alterations include the removal of some, if not all, the original redwood planking, and the addition of a supplemental hydraulic-fill embankment, tower, and spillway. The dam was raised by approximately 20 feet. Further modifications were made, including the modern addition of a parapet wall, asphalt walkway, and concrete block shed at the crest. The dam as it appears currently does not reflect the 1895 design or period of significance.

***B12. References:**

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