

# Appendix E-2

---

## Revised Weapons Storage Area Report





# REVISED HISTORIC STRUCTURE ASSESSMENT FOR THE WEST CAMPUS UPPER PLATEAU PROJECT

## MARCH AIR RESERVE BASE RIVERSIDE COUNTY, CALIFORNIA

APNs 297-090-001, -002, -003, and -009

**Submitted to:**

**March Joint Powers Authority  
14205 Meridian Parkway, Suite 140  
Riverside, California 92518**

**Prepared for:**

**Meridian Park, LLC  
c/o Lewis Retail Centers  
1156 North Mountain Avenue  
Upland, California 91785**

**Prepared by:**

**BFSA Environmental Services,  
a Perennial Company  
14010 Poway Road, Suite A  
Poway, California 92064**

*January 6, 2023; Revised July 18, 2023*



---

**BFSA Environmental Services**  
A Perennial Company

## **Archaeological Database Information**

- Author(s):*** BFSA Environmental Services, a Perennial Company
- Consulting Firm:*** BFSA Environmental Services, a Perennial Company  
14010 Poway Road, Suite A  
Poway, California 92064  
(858) 679-8218
- Report Date:*** Revised January 6, 2023; Revised July 18, 2023
- Report Title:*** Revised Historic Structure Assessment for the West Campus Upper Plateau Project, March Air Reserve Base, Riverside County, California (APNs 297-090-001, -002, -003, and -009)
- Prepared for:*** Meridian Park, LLC  
c/o Lewis Retail Centers  
1156 North Mountain Avenue  
Upland, California 91785
- Submitted to:*** March Joint Powers Authority  
14205 Meridian Parkway, Suite 140  
Riverside, California 92518
- USGS Quadrangle:*** *Riverside East, California (7.5 minute)*
- Key Words:*** USGS *Riverside East, California* topographic quadrangle; March Air Reserve Base; historic structure evaluation; not historically or architecturally significant; Igloos A1 to A14, Buildings B to G, and the WSA buildings, collectively, should not be considered Historical Resources under MJPA, CRHR, or NRHP criteria; no mitigation measures are recommended at this time.

## Table of Contents

		<u>Page</u>
I.	EXECUTIVE SUMMARY .....	1
II.	INTRODUCTION .....	2
	<i>Report Analysis Methods</i> .....	2
	<i>Project Area</i> .....	2
	<i>Project Personnel</i> .....	3
III.	PROJECT SETTING .....	3
	<i>Physical Project Setting</i> .....	3
	<i>Historical Overview</i> .....	4
	<i>General History of the City of Riverside</i> .....	7
	<i>Project Area and Vicinity: March Air Force Base</i> .....	8
	<i>Ammunition and Explosives Storage Area</i> .....	10
IV.	METHODS AND RESULTS .....	11
	<i>Archival Research</i> .....	11
	<i>Field Survey</i> .....	12
	<i>History of the Property: Ownership and Development</i> .....	12
	<i>Description of Surveyed Resources</i> .....	20
V.	SIGNIFICANCE EVALUATIONS.....	66
	<i>2022 MJPA CEQA Guidelines Section 11.28</i> .....	66
	<i>CRHR Criteria</i> .....	67
	<i>NRHP Criteria</i> .....	68
	<i>CRHR/MJPA/NRHP Evaluation</i> .....	68
	<i>Integrity Analysis</i> .....	73
VI.	FINDINGS AND CONCLUSIONS .....	81
VII.	CERTIFICATION .....	82
VIII.	BIBLIOGRAPHY .....	82
IX.	APPENDICES .....	85
	Appendix A: Site Record Forms	
	Appendix B: Maps	
	Appendix C: Preparer’s Qualifications	

**Plates**

**Page**

Plate 1 Site Sketch Showing the Building Locations.....13

Plate 2 1938 Aerial Photograph.....14

Plate 3 1948 Aerial Photograph.....15

Plate 4 1953 Aerial Photograph.....16

Plate 5 1962 Aerial Photograph.....17

Plate 6 1967 Aerial Photograph.....18

Plate 7 1978 Aerial Photograph.....19

Plate 8 Location Map for Igloos A1 to A14 .....21

Plate 9 Munitions Storage Igloos A11 to A14, Facing Northeast.....22

Plate 10 East Façade of Igloo A1, Facing Northwest .....23

Plate 11 West Façade of Igloo A10, Facing Southeast.....24

Plate 12 West Façade of Igloo A12, Facing East.....25

Plate 13 Interior View of the Double Doors on the West Façade of Igloo A12, Facing  
Northwest.....26

Plate 14 West Façade of Igloo A14, Facing East.....27

Plate 15 East Façade of Igloo A9, Facing West.....28

Plate 16 East Façade of Igloo A5, Facing Southwest .....29

Plate 17 West Façade of Igloo A13, Facing Northeast.....30

Plate 18 North (Left) and West (Right) Façades of Igloo A10, Facing Southeast .....31

Plate 19 West (Left) and South (Right) Façades of Igloo A14, Facing Northeast .....32

Plate 20 Interior View of Igloo A9, Facing West .....33

Plate 21 Interior View of Igloo A12, Facing East .....34

Plate 22 Interior View of Igloo A12, Facing East .....35

Plate 23 North Façade of Building B, Facing Southeast .....36

Plate 24 North Façade of Building B, Facing Southeast .....37

Plate 25 South Façade of Building B, Facing Northeast .....38

Plate 26 East Façade of Building B, Facing Northwest.....39

Plate 27 North Façade of Building B, Facing South.....40

**Plates (continued)**

	<b><u>Page</u></b>
Plate 28 West Façade of Building B, Facing Northeast.....	41
Plate 29 East Façade of Building B, Facing Northwest.....	42
Plate 30 North Façade of Building B, Facing South.....	44
Plate 31 North Façade of Building B, Facing South.....	45
Plate 32 South Façade of Building B, Facing Northeast .....	46
Plate 33 East Façade of Building B, Facing West .....	47
Plate 34 West (Left) and South (Right) Façades of Building B, Facing Northeast.....	48
Plate 35 Southwest Corner of Building C, Facing Northeast .....	49
Plate 36 West Façade of Building D, Facing East.....	50
Plate 37 West (Left) and South (Right) Façades of Buildings C and D, Facing Northeast.....	51
Plate 38 West Façades of Buildings C (Right) and D (Left), Facing Northeast.....	52
Plate 39 East Façades of Buildings C (Left) and D (Right), Facing Northwest .....	53
Plate 40 North Façade of Building E, Facing Southwest.....	54
Plate 41 North Façade of Building E, Facing Southwest.....	55
Plate 42 North Façade of Building E, Facing Southeast.....	56
Plate 43 South (Left) and East (Right) Façades of Building E, Facing Northwest .....	57
Plate 44 East (Left) Façade of Building E, Facing Southwest.....	58
Plate 45 West (Left) Façade of Building E, Facing Northeast .....	59
Plate 46 West (Left) and South (Right) Façades of Building F, Facing Northeast .....	60
Plate 47 South (Left) and East (Right) Façades of Building G, Facing Northwest.....	61
Plate 48 West Façade of Building F, Facing Northeast.....	62
Plate 49 East Façade of Building G, Facing West.....	63
Plate 50 East Façade of Building G, Facing Northwest.....	64
Plate 51 North (Left) and West (Right) Façades of Building G, Facing Southeast.....	65
Plate 52 1985 Aerial Photograph.....	76
Plate 53 1994 Aerial Photograph.....	77
Plate 54 2002 Aerial Photograph.....	78
Plate 55 Current Aerial Photograph.....	79

## **I. EXECUTIVE SUMMARY**

In response to a request from Meridian Park, LLC, courtesy of Lewis Retail Centers, BFSAs Environmental Services, a Perennial Company (BFSAs), conducted a historic structure evaluation of approximately 370 acres proposed for development (Development Area) within the West Campus Upper Plateau Project. The project is located within the March Joint Powers Authority (MJPA) planning area. More specifically, the project is located approximately 0.5 mile west of Interstate 215 (I-215) in the western portion of the MJPA planning area, west of Cactus Avenue's current terminus, east and southeast of the Mission Grove neighborhood, south of an existing County of Riverside residential neighborhood, and north of the Orangecrest neighborhood in the city of Riverside. The MJPA, as the lead agency for the project, required this study in compliance with the California Environmental Quality Act (CEQA) and the National Historic Preservation Act (NHPA).

In 1993, the federal government, through the Defense Base Closure and Realignment Commission, mandated the realignment of March Air Force Base (March AFB) and a substantial reduction in its military use. In April 1996, March AFB was redesignated as an Air Reserve Base (ARB). Within the Development Area is a Cold War-era March AFB Weapons Storage Area (WSA) with 20 structures, including munitions storage igloos (Igloos A1 to A14), constructed between 1948 and 1962, and weapons maintenance shops (Buildings B, C, D, E, F, and G), constructed between 1955 and 1956. The project proposes to remove the WSA structures except for Igloos A13 and A14, which will be preserved in open space within the Development Area. This study evaluates the structures individually and collectively as a potential historic district.

All WSA buildings meet the minimum 45-year age threshold to be considered historic and were evaluated under MJPA, California Register of Historical Resources (CRHR), and National Register of Historic Places (NRHP) criteria. The WSA buildings, individually or collectively:

- Are not strongly associated with any significant Cold War events at the national, state, or regional level.
- Are not associated with the lives of any persons important to local, California, or national history.
- Do not have distinctive characteristics of a type, period, region, or method of construction, do not represent the work of an important creative individual/entity, and do not possess high artistic values.
- Are not sources of data or likely sources of data important in the prehistory or history of the region, state, or nation.

Of the seven aspects of integrity, Igloos A1 to A14, Buildings B, D, E, F, and G, and the WSA buildings, collectively, were determined to retain integrity of location, design, and materials. Building C was determined to only retain integrity of location. None of the WSA buildings retain

integrity of setting, and they never possessed integrity of workmanship, feeling, or association.

Igloos A1 to A14, Buildings B to G, and the WSA buildings, collectively, should not be considered Historical Resources under either MJPA, CRHR, or NRHP criteria. Therefore, removal of most of the WSA buildings would not constitute a potentially significant impact to historic resources within the Development Area. As such, no mitigation measures are recommended at this time. Separately, the project proposes to retain Igloos A13 and A14 within open space, which will be accessible to the public. A plaque describing the history of the WSA will also be erected adjacent to the retained igloos.

## **II. INTRODUCTION**

### **Report Analysis Methods**

The purpose of this study is to evaluate the historic potential of the existing WSA buildings located within the Development Area. This study is required as part of the entitlement process for the proposed development to determine if the WSA buildings can be considered potentially significant and whether or not they are eligible for historic designation. The research conducted by BFSA related to this project conformed to the NHPA, Section 106, the National Environmental Policy Act (NEPA) of 1969, and CEQA. Because any development would require approval from the MJPA, the 2022 MJPA CEQA Guidelines and CRHR and NHPA historic resources eligibility criteria were used for this evaluation. Therefore, criteria for listing on the NRHP, CRHR, or as Historical Resources under MJPA CEQA Guidelines Section 11.28, are the appropriate measures of significance for the resources that will be affected by the proposed project.

### **Project Area**

The structures evaluated in this study are within Assessor's Parcel Numbers (APNs) 297-090-001, -002, -003, and -009. The project comprises approximately 818 acres within the MJPA planning area, approximately half a mile west of I-215. The approximately 818-acre site is comprised of 370 acres for the Development Area, three acres for an existing public facility, and 445 acres for a conservation easement. More specifically, the project is in the western portion of the MJPA planning area, west of Cactus Avenue's current terminus, east and south of the Mission Grove neighborhood, and north of the Orangecrest neighborhood in the city of Riverside. The project is situated within Sections 15, 16, 17, 20, and 21, Township 2 South, Range 4 West, of the San Bernardino Baseline and Meridian on the 7.5-minute USGS *Riverside East, California* topographic quadrangle map.

The Development Area covers approximately 370 acres of proposed commercial, industrial, and park development, as well as off-site improvements consisting of the extension of Cactus Avenue and Brown Street to provide access to the project. Existing development within the project consists of a non-operational water tower, an existing Eastern Municipal Water District water tank, paved and dirt access roads, and 14 munitions storage igloos and six weapons

maintenance shops associated with the WSA that were previously used for munitions storage by the United States Air Force prior to March AFB's realignment in 1993.

**Project Personnel**

This evaluation, word processing, editing, and graphics production services were provided by BFSAs staff.

**III. PROJECT SETTING**

**Physical Project Setting**

The project is located in the western portion of the MJPA planning area, west of March ARB. The Development Area is dominated by a plateau (referred to as the Upper Plateau) surrounded by low rolling hills separated by seasonal drainages. The Development Area is partially developed with the remnants of the WSA. The project is surrounded by residential uses to the northwest, west, and south, the Meridian West Campus Lower Plateau development area within the MJPA planning area to the east, and two new industrial buildings built by Exeter (in Riverside County) to the east and north.

The subject property lies within the Peninsular Ranges Geologic Province of southern California. The mountain range, which lies in a northwest to southeast trend through the county, extends some 1,000 miles from the Raymond-Malibu Fault Zone in western Los Angeles County to the southern tip of Baja California. Regionally, the project is within the Perris Block, a fault-bounded crustal block bounded on the west by the Elsinore fault zone and on the east by the San Jacinto fault zone (Morton and Cox 2001). The geology mapped at the subject property is mostly underlain by the Cretaceous-aged Val Verde tonalite, a type of crystalline plutonic rock related to granite (Morton and Cox 2001). Scattered, linear outcrops of Cretaceous granitic dikes, Paleozoic biotite schist, and mixed provenance crystalline rocks of pre-Cenozoic age are mapped as being surrounded by the Val Verde tonalite within the subject property. At the far eastern end of the project, lower Pleistocene (approximately 1.8 million- to perhaps 200,000- to 300,000-year-old), sandy, very old alluvial fan deposits are mapped. The specific soil types found at the property are primarily Fallbrook rocky sandy loam, Vista coarse sandy loam, Monserate sandy loam, and Cieneba rocky sandy loam (NRCS 2019).

Vegetation found within the subject property is dominated by non-native weeds and grasses; however, pockets of sage scrub are found throughout with some limited riparian habitat situated near and within the seasonal drainages. During the prehistoric period, vegetation near the project provided sufficient food resources to support prehistoric human occupants. Animals that inhabited the area during prehistoric times included mammals such as rabbits, squirrels, gophers, mice, rats, deer, and coyotes, in addition to a variety of reptiles and amphibians. The natural setting of the project area during prehistoric occupation offered a rich nutritional resource base. Fresh water was likely obtainable from surrounding drainages and springs.



### **Historical Overview**

Traditionally, the history of the state of California has been divided into three general periods: the Spanish Period (1769 to 1821), the Mexican Period (1822 to 1846), and the American Period (1848 to present) (Caughey 1970). The American Period is often further subdivided into additional phases: the nineteenth century (1848 to 1900), the early twentieth century (1900 to 1950), and the Modern Period (1950 to present). From an archaeological standpoint, all of these phases can be referred to together as the Ethnohistoric Period. This provides a valuable tool for archaeologists, as ethnohistory is directly concerned with the study of indigenous or non-Western peoples from a combined historical/anthropological viewpoint, which employs written documents, oral narrative, material culture, and ethnographic data for analysis.

European exploration along the California coast began in 1542 with the landing of Juan Rodriguez Cabrillo and his men at San Diego Bay. Sixty years after the Cabrillo expeditions, an expedition under Sebastian Viscaíno made an extensive and thorough exploration of the Pacific coast. Although the voyage did not extend beyond the northern limits of the Cabrillo track, Viscaíno had the most lasting effect upon the nomenclature of the coast. Many of his place names have survived, whereas practically every one of the names created by Cabrillo have faded from use. For instance, Cabrillo named the first (now) United States port he stopped at “San Miguel”; 60 years later, Viscaíno changed it to “San Diego” (Rolle 1969). The early European voyages observed Native Americans living in villages along the coast but did not make any substantial, long-lasting impact. At the time of contact, the Luiseño population was estimated to have ranged from 4,000 to as many as 10,000 individuals (Bean and Shipek 1978; Kroeber 1976).

The historic background of the region begins with the Spanish colonization of Alta California. The first Spanish colonizing expedition reached southern California in 1769 with the intention of converting and civilizing the indigenous populations, as well as expanding the knowledge of and access to new resources in the region (Brigandi 1998). As a result, by the late eighteenth century, a large portion of southern California was overseen by Mission San Luis Rey (San Diego County), Mission San Juan Capistrano (Orange County), and Mission San Gabriel (Los Angeles County), who began colonization the region and surrounding areas (Chapman 1921).

Up until this time, the only known way to feasibly travel from Sonora to Alta California was by sea. In 1774, Juan Bautista de Anza, an army captain at Tubac, requested and was given permission by the governor of the Mexican State of Sonora to establish an overland route from Sonora to Monterey (Chapman 1921). In doing so, Juan Bautista de Anza passed through Riverside County and described the area in writing for the first time (Caughey 1970; Chapman 1921). In 1797, Father Presidente Lausen (of Mission San Diego de Alcalá), Father Norberto de Santiago, and Corporal Pedro Lisalde (of Mission San Juan Capistrano) led an expedition through southwestern Riverside County in search of a new mission site to establish a presence between San Diego and San Juan Capistrano (Engelhardt 1921). Their efforts ultimately resulted in the establishment of Mission San Luis Rey in Oceanside, California.

Each mission gained power through the support of a large, subjugated Native American workforce. As the missions grew, livestock holdings expanded and became increasingly vulnerable to theft. In order to protect their interests, the southern California missions began to expand inland to try and provide additional security (Beattie and Beattie 1939; Caughey 1970). In order to meet their needs, the Spaniards embarked on a formal expedition in 1806 to find potential locations within what is now the San Bernardino Valley. As a result, by 1810, Father Francisco Dumetz of Mission San Gabriel had succeeded in establishing a religious site, or capilla, at a Cahuilla rancheria called Guachama (Beattie and Beattie 1939). San Bernardino Valley received its name from this site, which was dedicated to San Bernardino de Siena by Father Dumetz. The Guachama rancheria was located in present-day Bryn Mawr in San Bernardino County.

These early colonization efforts were followed by the establishment of estancias at Puente (circa 1816) and San Bernardino (circa 1819) near Guachama (Beattie and Beattie 1939). These efforts were soon mirrored by the Spaniards from Mission San Luis Rey, who in turn established a presence in what is now Lake Elsinore, Temecula, and Murrieta (Chapman 1921). The indigenous groups who occupied these lands were recruited by missionaries, converted, and put to work in the missions (Pourade 1961). Throughout this period, the Native American populations were decimated by introduced diseases, a drastic shift in diet resulting in poor nutrition, and social conflicts due to the introduction of an entirely new social order (Cook 1976).

Mexico achieved independence from Spain in 1822 and became a federal republic in 1824. As a result, both Baja and Alta California became classified as territories (Rolle 1969). Shortly thereafter, the Mexican Republic sought to grant large tracts of private land to its citizens to begin to encourage immigration to California and to establish its presence in the region. Part of the establishment of power and control included the desecularization of the missions circa 1832. These same missions were also located on some of the most fertile land in California and, as a result, were considered highly valuable. The resulting land grants, known as “ranchos,” covered expansive portions of California and by 1846, more than 600 land grants had been issued by the Mexican government. Rancho Jurupa was the first rancho to be established and was issued to Juan Bandini in 1838. Although Bandini primarily resided in San Diego, Rancho Jurupa was located in what is now Riverside County (Pourade 1963). A review of Riverside County place names quickly illustrates that many of the ranchos in Riverside County lent their names to present-day locations, including Jurupa, El Rincon, La Sierra, El Sobrante de San Jacinto, La Laguna (Lake Elsinore), Santa Rosa, Temecula, Pauba, San Jacinto Nuevo y Potrero, and San Jacinto Viejo (Gunther 1984). As was typical of many ranchos, these were all located in the valley environments within western Riverside County.

The treatment of Native Americans grew worse during the Rancho Period. Most of the Native Americans were forced off of their land or put to work on the now privately-owned ranchos, most often as slave labor. In light of the brutal ranchos, the degree to which Native Americans had become dependent upon the mission system is evident when, in 1838, a group of Native Americans from Mission San Luis Rey petitioned government officials in San Diego to relieve

suffering at the hands of the rancheros:

We have suffered incalculable losses, for some of which we are in part to be blamed for because many of us have abandoned the Mission ... We plead and beseech you ... to grant us a Rev. Father for this place. We have been accustomed to the Rev. Fathers and to their manner of managing the duties. We labored under their intelligent directions, and we were obedient to the Fathers according to the regulations, because we considered it as good for us. (Brigandi 1998:21)

Native American culture had been disrupted to the point where they could no longer rely upon prehistoric subsistence and social patterns. Not only does this illustrate how dependent the Native Americans had become upon the missionaries, but it also indicates a marked contrast in the way the Spanish treated the Native Americans compared to the Mexican and United States ranchers. Spanish colonialism (missions) is based upon utilizing human resources while integrating them into their society. The Mexican and American ranchers did not accept Native Americans into their social order and used them specifically for the extraction of labor, resources, and profit. Rather than being incorporated, they were either subjugated or exterminated (Cook 1976).

By 1846, tensions between the United States and Mexico had escalated to the point of war (Rolle 1969). In order to reach a peaceful agreement, the Treaty of Guadalupe Hidalgo was put into effect in 1848, which resulted in the annexation of California to the United States. Once California opened to the United States, waves of settlers moved in searching for gold mines, business opportunities, political opportunities, religious freedom, and adventure (Rolle 1969; Caughey 1970). By 1850, California had become a state and was eventually divided into 27 separate counties. While a much larger population was now settling in California, this was primarily in the central valley, San Francisco, and the Gold Rush region of the Sierra Nevada mountain range (Rolle 1969; Caughey 1970). During this time, southern California grew at a much slower pace than northern California and was still dominated by the cattle industry established during the earlier rancho period. However, by 1859, the first United States Post Office in what would eventually become Riverside County was set up at John Magee's store on the Temecula Rancho (Gunther 1984).

During the same decade, circa 1852, the Native Americans of southern Riverside County, including the Luiseño and the Cahuilla, thought they had signed a treaty resulting in their ownership of all lands from Temecula to Aguanga east to the desert, including the San Jacinto Valley and the San Gorgonio Pass. The Temecula Treaty also included food and clothing provisions for the Native Americans. However, Congress never ratified these treaties, and the promise of one large reservation was rescinded (Brigandi 1998).

With the completion of the Southern Pacific Railroad in 1869, southern California saw its first major population expansion. The population boom continued circa 1874 with the completion of connections between the Southern Pacific Railroad in Sacramento to the transcontinental

Central Pacific Railroad in Los Angeles (Rolle 1969; Caughey 1970). The population influx brought farmers, land speculators, and prospective developers to the region. As the Jurupa area became more and more populated, circa 1870, Judge John Wesley North and a group of associates founded the city of Riverside on part of the former rancho.

Although the first orange trees were planted in Riverside County circa 1871, it was not until a few years later when a small number of Brazilian navel orange trees were established that the citrus industry truly began in the region (Patterson 1971). The Brazilian navel orange was well suited to the Riverside County climate and thrived with assistance from several extensive irrigation projects. At the close of 1882, an estimated half a million citrus trees were present in California. It is estimated that nearly half of that population was in Riverside County. Population growth and 1880s tax revenue from the booming citrus industry prompted the official formation of Riverside County in 1893 out of portions of what was once San Bernardino County (Patterson 1971).

Shortly thereafter, with the start of World War I, the United States began to develop a military presence in Riverside County with the construction of what would become March AFB. During World War II, Camp Haan and Camp Anza were constructed in what is now the current location of Riverside National Cemetery. In the decades that followed, populations spread throughout the county into Lake Elsinore, Corona, Norco, Murrieta, and Wildomar. However, a significant portion of the county remained largely agricultural well into the 1970s. Following the 1970s, Riverside saw a period of dramatic population increase as the result of new development, more than doubling the population of the county with a population of over 1.3 million residents (Patterson 1971).

### **General History of the City of Riverside**

The city of Riverside was officially formed in 1870, primarily as a result of the vision of Judge John Wesley North. North and a group of investors formed the Southern California Colony Association in hopes of founding a viable agricultural colony in southern California (Patterson 1971). Although initially focused upon the Los Angeles region, their gaze shifted to the banks of the Santa Ana River in Rancho Jurupa where land was readily available for purchase from the California Silk Association (Stonehouse 1965). North became part of the community, providing the initial survey of the new colony and helping to facilitate its overall development. The community was originally dubbed “Yurupa,” but the moniker was revised to “Riverside” at the close of 1870 (Stonehouse 1965; Patterson 1971). Although North had originally envisioned a diversified farming community growing a wide range of produce, including “oranges, lemons, figs, English walnuts, olives, almonds, raisin grapes, wine grapes, peanuts, sweet potatoes, sorghum and sugar beets” (Stonehouse 1965), the drive of the citrus industry by the 1880s and the introduction of the navel orange would eventually lead to a more citrus-focused industry in Riverside.

The expansion of the citrus industry in Riverside would have never been possible without the canal system, which was established in stages between 1870 and 1888. In an effort to feed the

growing citrus industry, the first of these irrigation projects was initiated by the Southern California Colony Association and the California Silk Association in 1870 (Bailey 1961). This first canal system was followed by additional canals developed by the Riverside Canal Company and the Riverside Water Company in 1886 (Bailey 1961). With the establishment of a third large canal (the Gage Canal) between 1882 and 1888, a constant and reliable water source had been established, feeding some 20,000 acres of navel orange groves by 1885 (Guinn 1907; Brown 1985).

The growth of Riverside was further fueled by the development of the railroad system across the United States, giving the city the ability to ship citrus nationwide. As a result of the success of the navel orange, the establishment of canal systems, the advent of rail transportation, and the subsequent associated packing and cold storage industries, by 1885, Riverside had become the wealthiest city per capita in the United States (Patterson 1971).

After the end of World War II, as with the rest of Riverside County, a significant portion of the city of Riverside remained largely agricultural well into the 1970s. However, the city did enjoy some diversification with the introduction of a sizable manufacturing sector during this period. Following the 1970s, the city of Riverside and Riverside County as a whole saw a period of dramatic population increase as the result of new development, with the city growing to a population of over 300,000 residents by 2010 (United States Census Bureau 2010).

### **Project Area and Vicinity: March Air Force Base**

In early 1917, the United States entered World War I, necessitating the construction of additional military bases across the country to contribute to the war effort. During that time, March AFB operated as a small temporary United States Army Air Corps facility (Mikesell and Wee 1996). However, March AFB only saw limited use, as World War I ended on November 11, 1918, shortly after the base was established (Patterson 1971). The base was subsequently deactivated and dismantled for the construction of what is now called the March Field Historic District in the mid-1920s. The plans for the new base were heavily influenced by emerging principles in the field of city planning that favored a comprehensive approach to urban design, which coordinates diverse aspects of the built environment such as architecture, landscape, transportation, communal areas, etc. The reconstruction of the base was heavily influenced by the work of California architect Myron Hunt, who established a Mission Revival theme for the base, and New York City planner George B. Ford, who designed the base's triangular plan (Schroth 1998).

After its reconstruction and before World War II, the base was actively used for pilot training and tactical unit repair and activation (March ARB 2010). With the advent of World War II, it grew in size and importance, housing troops from around the United States and further expanding the city of Riverside's economy and population, with many service members choosing to settle in the region. During World War II, a massive construction program was undertaken at March AFB and numerous barracks, warehouses, and supply and utility buildings were constructed using standardized designs provided by the United States military (Schroth 1998). In addition, the

runways and airfield facilities were improved due to the increasing importance of the United States Air Force and Camp Haan, a new anti-aircraft artillery cantonment, laid out west of the base in 1940 (Johnson et al. 1991 in Schroth 1998). Construction of Camp Haan led to increased traffic at both March AFB and Camp Haan so much so that realignment of Highway 395 was required. Camp Haan was not part of March AFB at the time of its construction; however, it was still involved in the social and military life of the base and was absorbed by the base following World War II. Although March AFB was significantly expanded during World War II, it remained a training center during the greater part of the war (Johnson et al. 1991).

While defense spending was drastically decreased in the post-World War II period, the United States Air Force continued to be one of the most important components of the United States military following the Cold War. While the United States Air Force used and reorganized the existing March AFB facilities, new facilities with up-to-date technology were added to those bases used by the United States Air Force (Schroth 1998). Throughout the Cold War, March AFB continued to expand. In 1949, it was placed under Strategic Air Command (SAC), who was responsible for nuclear warfare and its deterrence (Mikesell and Wee 1996). As a result, March AFB became the “deterrent to the perceived Soviet threat and played an integral part of that role in the years to come” (Wessel 1995). In the 1950s and 1960s, March AFB served as the headquarters of the Fifteenth Air Force (15 AF), which played an important role in the development and management of the SAC’s Intercontinental Ballistic Missile (ICBM) force (Mikesell and Wee 1996). At that time, AF 15 at March AFB controlled over 10 bases throughout the West, holding jurisdiction over 75.00 percent of SAC’s ICBMs throughout the western United States (Wessel 1995).

During the Vietnam War, as March AFB served as the 15 AF headquarters, much of the planning and deployment of SAC forces to Southeast Asia took place at the base. With the relocation of the air refueling deployment operation from Castle AFB in northern California to March AFB in 1972, March AFB began to play an increasingly important role in the conduct of the war. In the period after the war, March AFB experienced many budget and personnel cuts. The number of employees at the base was reduced by 20.00 percent and some personnel were moved to inland bases. With the end of the Cold War, SAC was disestablished in 1992.

In 1993, the federal government, through the Defense Base Closure and Realignment Commission, mandated the realignment of March AFB and a substantial reduction in its military use under the command of Air Mobility Command. The 15 AF headquarters were relocated to Travis, California in 1993 (Wessel 1995). The decision to realign March AFB resulted in approximately 4,400 acres of property and facilities being declared surplus and available for disposal actions. To oversee the dispensation and management of the surplus land, the cities of Moreno Valley, Perris, and Riverside and the County of Riverside formed the March JPA in 1993, which continues to serve as the reuse authority of March ARB. In 1996, the base was officially redesignated as March ARB (March Field Air Museum n.d.).

### **Ammunition and Explosives Storage Structures**

Ammunition and explosive storage structures, which are also referred to as magazines, are essential elements of any military base. Since these structures are designed to contain highly explosive munitions in an area separate from daily military activities, utilitarian forms are observed in their construction (Murphey et al. 2000).

There was no standardized approach to the storage of ammunition and explosives prior to the mid-1920s. The explosive material was stored in aboveground warehouses built of stone and/or brick, which provided comparably safer storage spaces than timber buildings (Murphey et al. 2000). However, these structures did not completely eliminate the risks, as evidenced by the explosion at Lake Denmark, New Jersey in 1926, where one explosion triggered a chain reaction destroying everything within a one-mile radius and causing 21 fatalities. This explosion resulted in 47 million dollars in damages (Mersereau 2014).

After the Lake Denmark disaster, it became apparent that storage of ammunition and explosives required a different approach. New designs for explosives storage were developed to ameliorate the shortcomings of the previously used structures. This new type of storage building was popularly known as an igloo. While the overall construction of the igloo-type magazines remained the same, some design features were revised over the years, decreasing the use of the construction material and the land area (Murphey et al. 2000). Howdyshell ([1981] in Murphey et al. 2000:1) asserts that the decrease of the land used for these magazines was especially significant in Europe, where land constraints posed a special problem.

These igloos were commonly covered with earth and featured concrete building material. Although the floor of the storage structure was at or above the ground level, because the magazine was covered with earth on three sides, it was considered to be underground. The structure underneath the earth-covered portion was barrel-arched and constructed of reinforced concrete. The use of the barrel-arch design directed the force of a potential explosion upward, rather than outward, decreasing the chance of a chain explosion. The earth on the structure was designed to dampen the force of the explosion. There are also limits to the amount of explosive material stored in each igloo magazine. The thermal insulation quality of concrete and earth eliminates the risk of high temperatures, both reducing potential explosions and deterioration of munitions. The earth cover of these structures provided camouflage to these valuable resources (Murphey et al. 2000).

The precedent of the igloo-designed magazines is not clear, as this design started to simultaneously appear in several different geographic locations in the 1930s. Earlier examples were extant in the earlier United States Army and Navy bases. These earlier examples featured flat concrete roofs instead of concrete arches (Fine and Remington 1972; Reed 1995 in Murphey et al. 2000). As mentioned previously, the barrel-vaulted design of the later examples directs the explosion upward, more specifically along the narrow ridge of the arch, therefore reducing the radius of effect. The design of the earlier flat-roofed examples, on the other hand, causes an unpredictable explosion pattern, increasing the risk of nearby sympathetic explosions (Explosives Safety Board 1997).

Most of the ammunition and explosive magazines were constructed during and after World War II. The construction of these storage structures started as a part of the nation's large-scale mobilization during World War II (Murphey et al. 2000). From 1939 to 1945, the United States government spent hundreds of millions of dollars to construct 77 new military industrial facilities and 16 major ordnance depots. After the war, many of the military facilities were either closed or were placed in layaway status in case a future need arises. However, due to the abundance of ordnance and raw materials that were no longer needed, the storage depots remained opened and continued to be used for storing ammunition (Kuranda et al. 2009).

With the invasion of South Korea in June 1950, some of the production plants that were closed at the end of World War II were reopened. At that time, the development of weapons technology allowed for the production of extremely powerful explosives, which required a need for enhanced logistical support. The artillery, anti-aircraft guns, and mortars, which comprise the bulk of the munitions, began to be replaced by guided missiles and rockets. Munitions storage structures constructed before and during World War II continued to be used for the storage of these newer and larger weapons. Specialized lifting devices were developed to safely maneuver these larger missiles (Kuranda et al. 2009).

The design of the earth-covered magazines also changed in the period following the Korean War. Although the general design and the arched-roof structure of the igloos remained the same, wider openings with double-leaf steel doors began to be featured to facilitate the transportation of larger munitions. Older magazines were modified with the installation of access ramps and wider doors to allow the storage of heavier munitions. The most radical change in the design of the igloos took place in the mid-1950s. In 1954, the Chief of Ordnance recommended a new igloo design named "Stradley" after its designer. This design, which was also known as the yurt, featured vertical side walls, an elliptical arch for the roof, and large sliding doors. The vertical walls of this design created additional storage space and allowed the munitions to be stacked vertically (Kuranda et al. 2009).

Large-scale construction of munitions storage structures slowed down after the 1960s, but construction of other military-related buildings continued. With the end of the Cold War approaching and following the end of the Vietnam War in 1975, the United States military began to greatly reduce the amount of ordnance-related construction. During this time, the design and materials used in the construction of the igloo magazines were standardized. These standardized structures lacked ornamentation and the most important construction and design criterion was safety (Kuranda et al. 2009).

#### **IV. METHODS AND RESULTS**

##### **Archival Research**

Records relating to the ownership and developmental history of the project were sought to identify any associated potential historic or architectural significance. Records located at the



BFSA research library and the Riverside County Assessor/Recorder/Clerk were accessed for information regarding the structures. Appendix B contains maps of the Development Area, including a general location map, historic and current USGS project location maps, and the current Assessor's parcel map (Figures 1 to 8). Sanborn Fire Insurance maps were searched for, but the project is outside the coverage area.

### **Field Survey**

BFSA conducted a photographic documentation survey on June 6 and 7 and December 8, 2022. The survey resulted in the identification of 20 buildings over 45 years of age associated with March AFB WSA, including munitions storage igloos (Igloos A1 to A14) and weapons maintenance shops (Buildings B, C, D, E, F, and G) (Plate 1). The structures were evaluated individually and collectively as a potential historic district. The munitions storage igloos were constructed between 1948 and 1962 and the weapons maintenance shops were constructed between 1955 and 1956. Preparation of architectural descriptions for the buildings was conducted in the field and supplemented using the photographic documentation. Additional information was drawn from supplemental research efforts and incorporated into this report.

### **History of the Property: Ownership and Development**

Aerial photographs from 1938 indicate that prior to construction of the March AFB WSA, this area was vacant (Plate 2). Bureau of Land Management records do not show any land grants within the boundaries of the area. The aerial photographs of the area that date back to 1948 are heavily redacted. However, visible portions of the area indicate the presence of an earlier storage complex located southeast of the existing magazines used to store munitions (Plate 3). The 1953 aerial photograph shows that the munitions storage complex constructed between 1938 and 1948 consists of 16 likely identical magazines and two additional structures. It also shows that additional underground igloo-style magazines (A1 to A9 in Plate 1) were constructed west of this area between 1948 and 1953 (Plate 4).

A 1951 *The Beacon* article mentions March AFB acquired over \$15 million from the Marshall Appropriation in Congress to build a new hospital, administration buildings, and a munition storage area (Wessel 1995:367). As such, it is likely Igloos A1 to A9 were constructed between 1951 and 1953. By 1962, Igloos A10 to A14 were constructed west of the 1948 to 1953 igloos, completing the current weapons storage complex around Cactus Circle East (Plate 5). Wessel (1995) mentions that the earlier magazines (A1 to A9 in Plate 1) were constructed in 1953 and the later magazines were constructed in 1955; however, no sources are cited. In addition to the igloo-style magazines, the structures northeast of the WSA (Buildings B to G) were constructed between 1955 and 1956 (Cabrera Services, Inc. 2006) (see Plates 1, 6, and 7). Wessel (1995) notes these buildings were used as maintenance shops. The 1938 to 1948 munitions storage igloos were removed between 1967 and 1978. The WSA buildings were used to store, inspect, and provide maintenance on various types of munitions (conventional and nuclear).



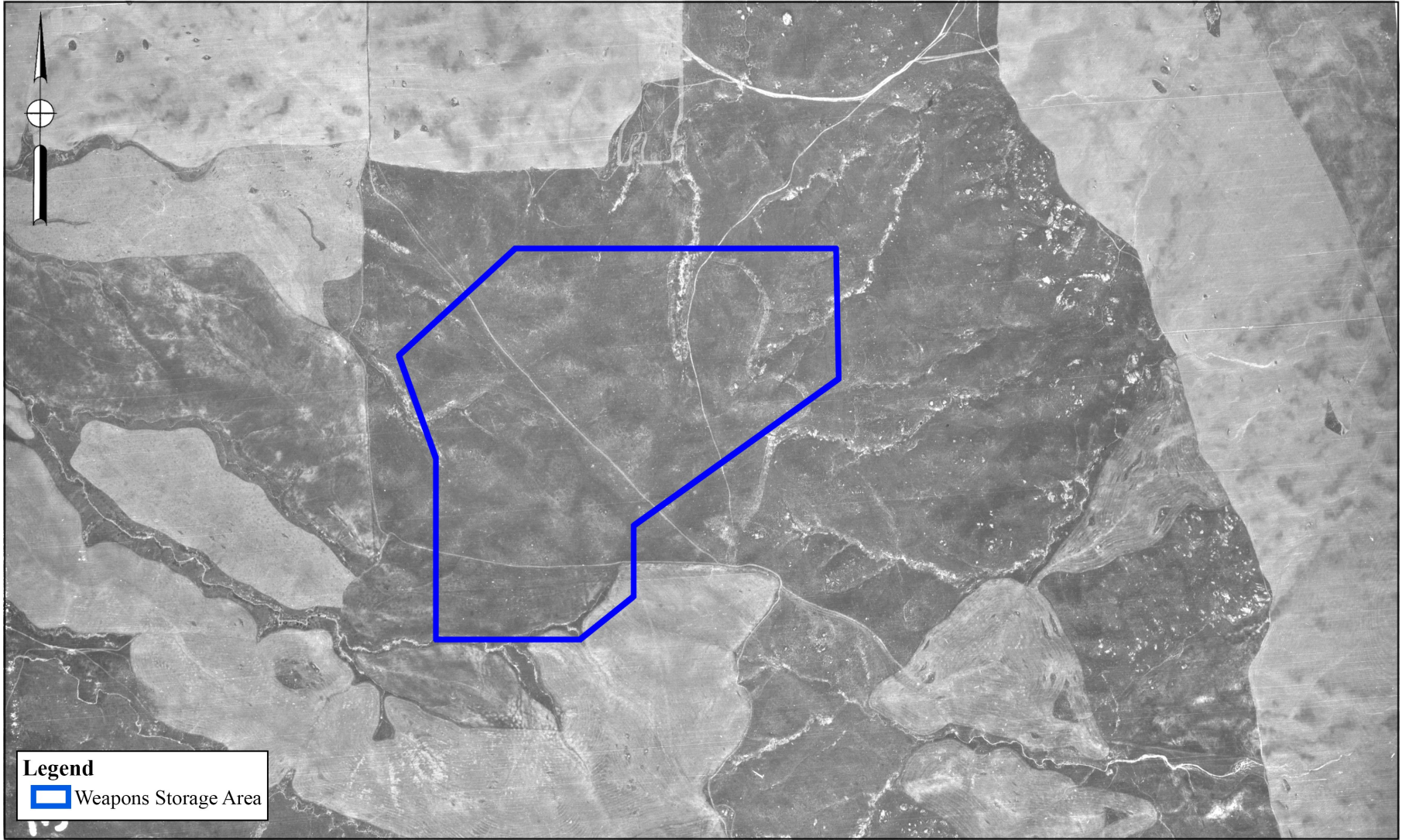


**BFS Environmental Services**  
A Perennial Company

**Plate 1**  
**Site Sketch Showing the Building Locations**  
The West Campus Upper Plateau Project

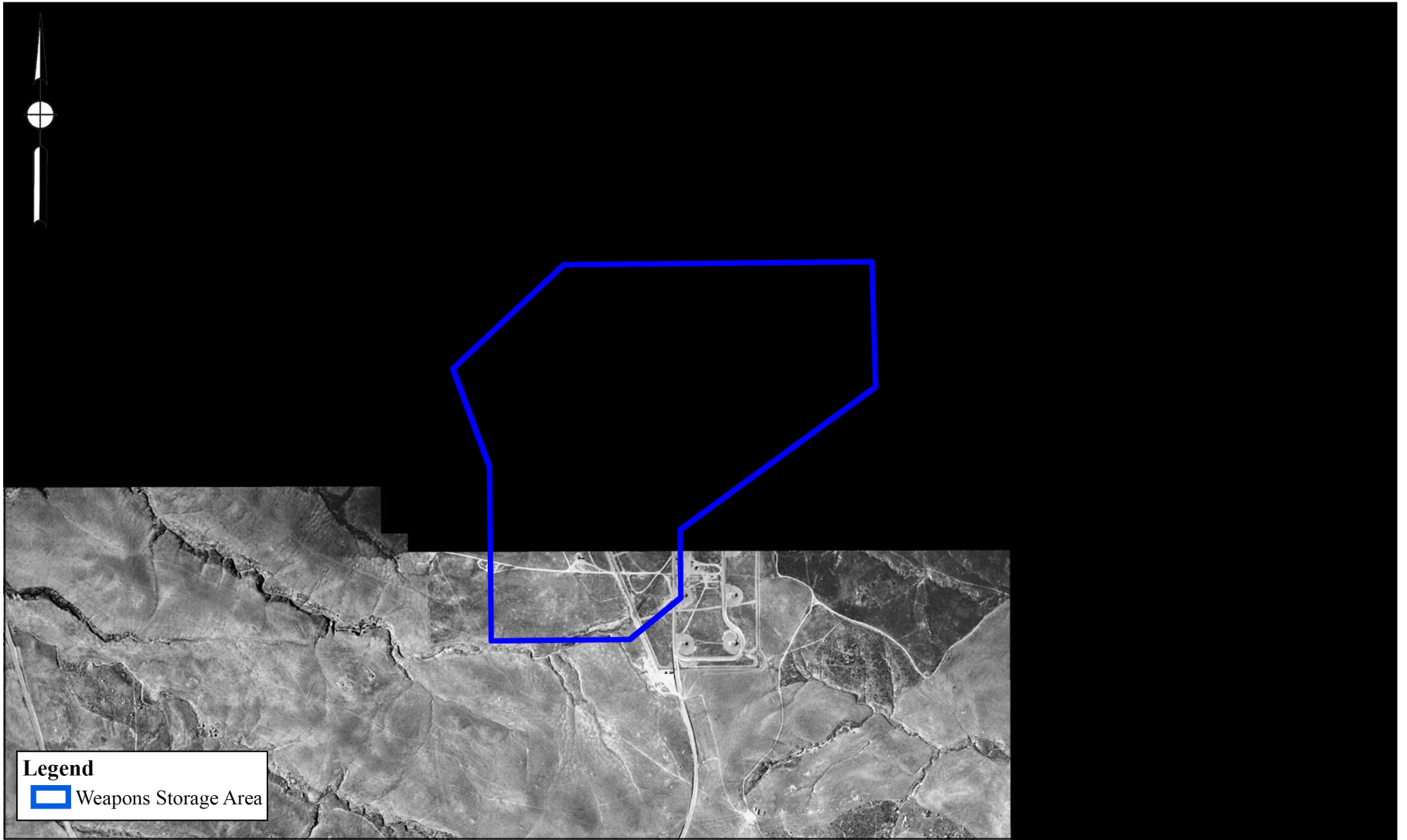






**Plate 2**  
**1938 Aerial Photograph**  
The West Campus Upper Plateau Project





**Legend**  
[Blue Outline] Weapons Storage Area

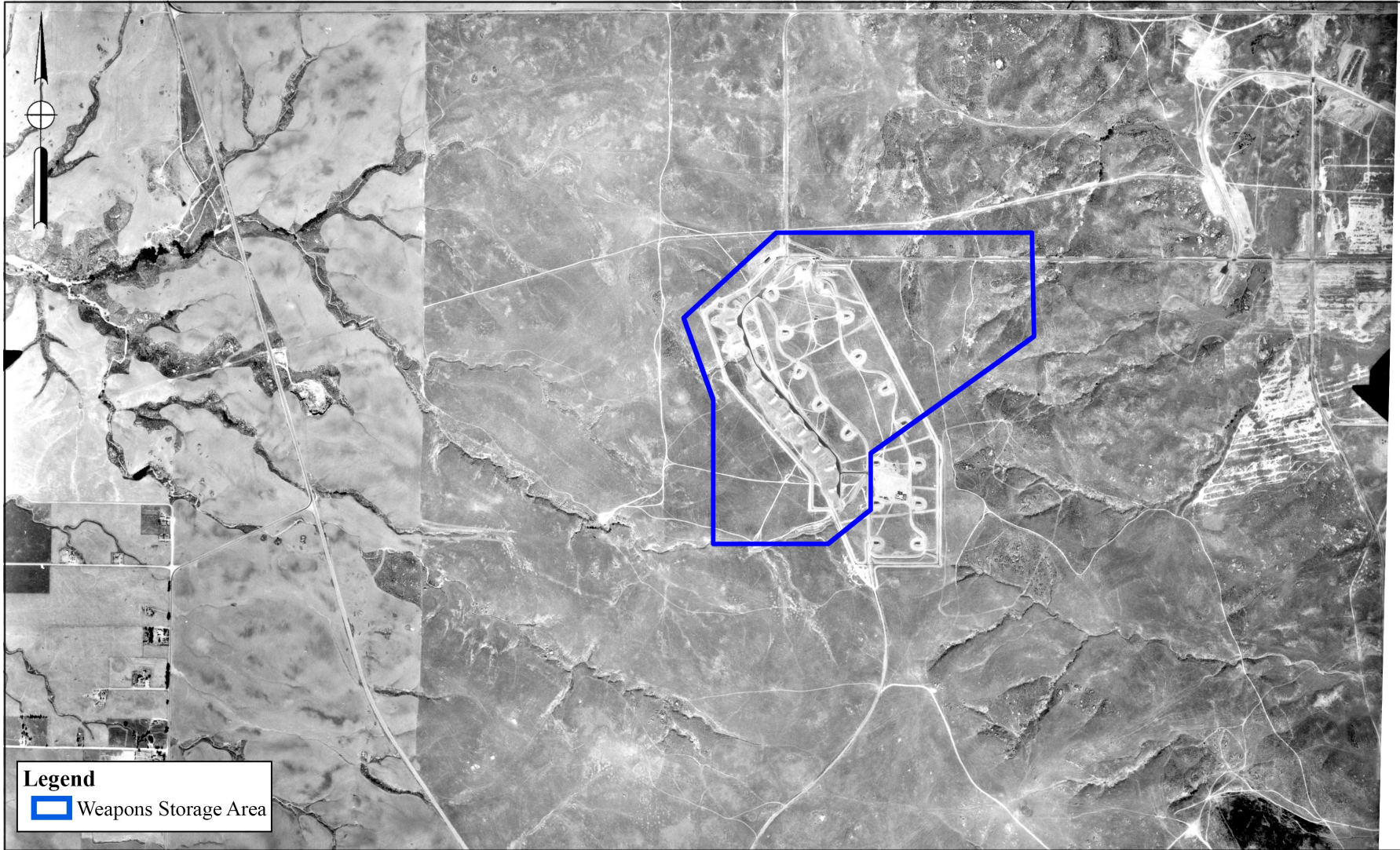


**BFS Environmental Services**  
A Perennial Company

**Plate 3**  
**1948 Aerial Photograph (Redacted)**  
The West Campus Upper Plateau Project





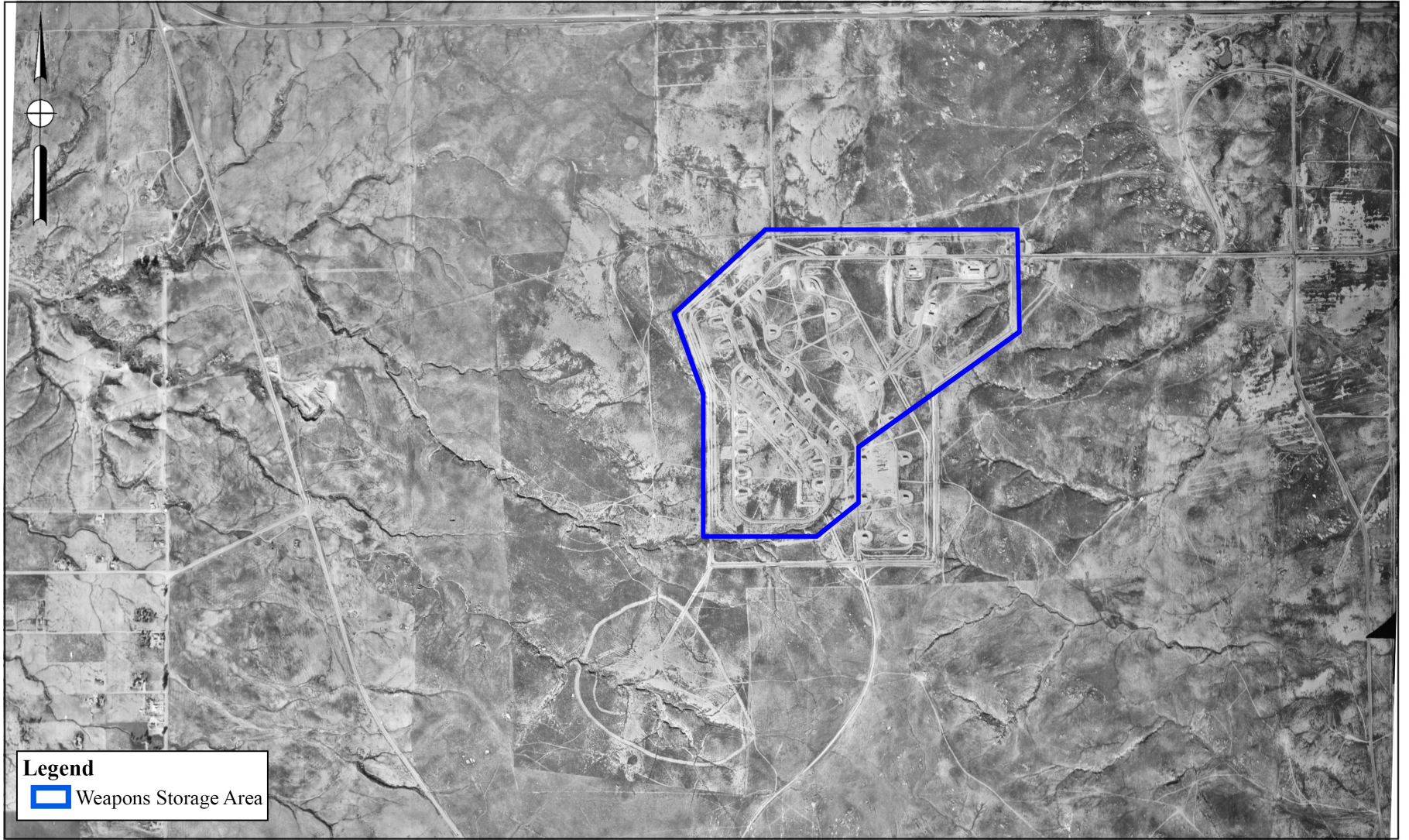


**BFSA Environmental Services**  
A Perennial Company

**Plate 4**  
**1953 Aerial Photograph**  
The West Campus Upper Plateau Project







**Legend**  
[Blue Square] Weapons Storage Area

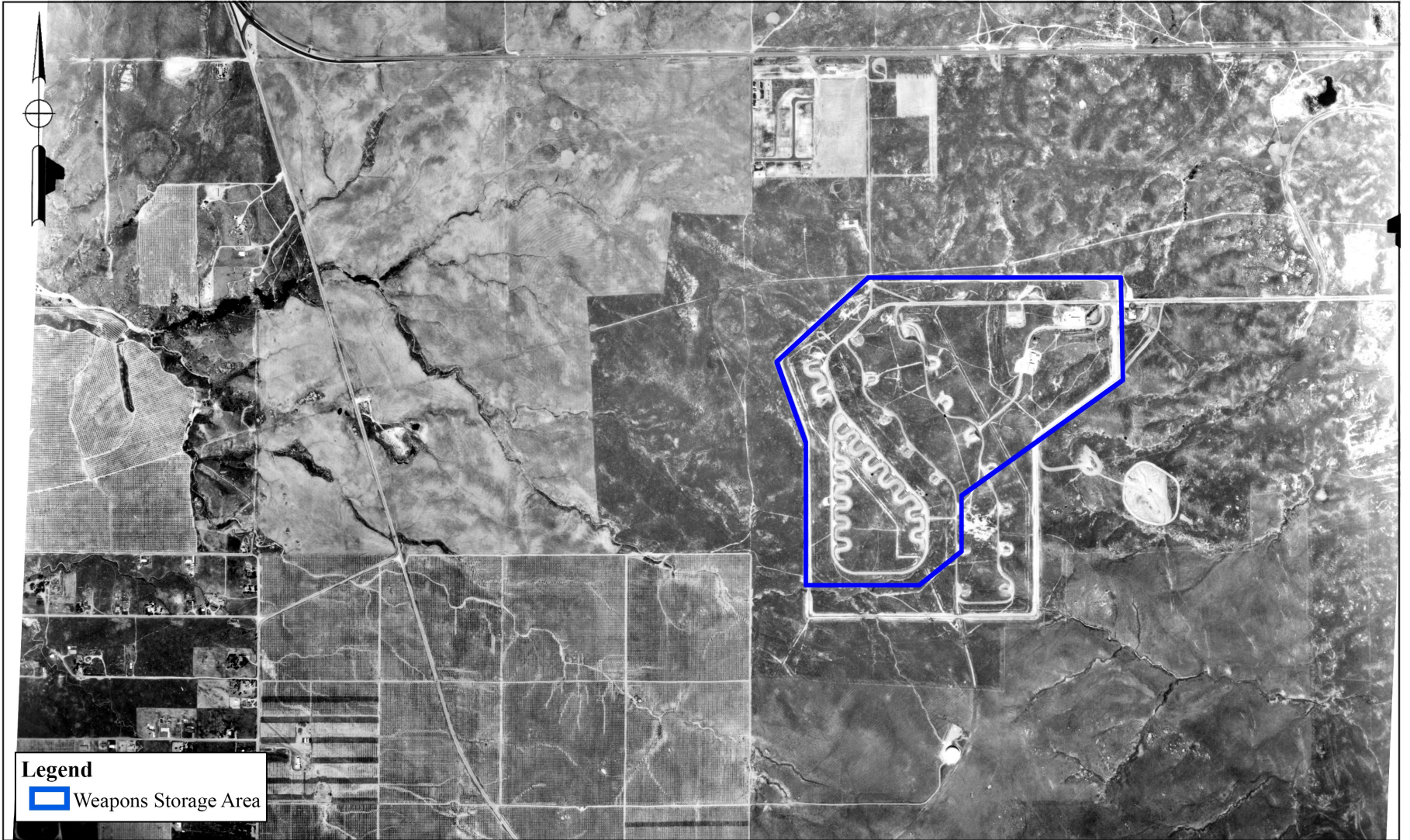


**BFSA Environmental Services**  
A Perennial Company

**Plate 5**  
**1962 Aerial Photograph**  
The West Campus Upper Plateau Project







**Legend**  
[Blue Outline] Weapons Storage Area



**BFS Environmental Services**  
A Perennial Company

**Plate 6**  
**1967 Aerial Photograph**  
The West Campus Upper Plateau Project







**Legend**  
[Blue Outline] Weapons Storage Area



**BFS Environmental Services**  
A Perennial Company

**Plate 7**  
**1978 Aerial Photograph**  
The West Campus Upper Plateau Project





## **Description of Surveyed Resources**

### **Igloos A1 to A14**

According to historic aerial photographs, the eastern underground igloo-style magazines (Igloos A1 to A9) were constructed between 1948 and 1953, and the western ones (Igloos A10 to A14) were constructed between 1953 and 1962 (Plate 8). This weapons storage complex consists of 14 structures. The builders of these structures are unknown. Archival research and field investigations suggest that these structures were constructed according to military standard designs as approximately 25 feet in width by 80 feet long (Plate 9). These structures are not the Stradley design.

These igloos are barrel-shaped structures featuring reinforced concrete foundations and constructions. The wing walls of the igloos feature Huntsville-type primary façades truncated a few feet from the ground (Plates 10 and 11). These designs were typical of the period. The west (primary) façades of these igloos also feature heavy steel double-leaf swing doors (Plates 12 and 13). A variety of mechanical and security equipment is mounted on the west façade (Plate 14). Extending from an access road in front of each igloo is a paved unloading area. The earlier igloos (A1 to A9) feature a slight projection around the entrance of the structure (Plates 15 and 16). The later igloos (A10 to A14) feature a horizontal concrete cornice above the entry (Plate 17). The sloping sides of the west façade project beyond the vaulted concrete walls. The exterior surface of the vault is earth-covered. Intake vents, exhaust vents, and lightning rods are located on the crown of the arch at the exterior. While the earlier igloos feature square-shaped, multi-tier vents (Plate 18), the later igloos feature basic circular vents (Plate 19).

The interiors of these structures are bare, and feature vaulted concrete walls (Plate 20). Lights and security equipment have been installed along the crown of the arch. Mechanical equipment has been installed on the wall at the entrance end of the igloo. Some of the later igloos (A10, A12, and A14) feature a secondary interior concrete vault structure. These secondary structures have rectangular plans and feature thick reinforced concrete walls (Plates 21 and 22). Originally, these vaults featured bank vault-type doors with double combination locks, which were removed in 1963 (Cabrera Services, Inc. 2006).

### **Building B**

Building B is located northeast of the igloos and is the westernmost weapons maintenance shop. Building B was constructed between 1955 and 1956 and classified as a Conventional Munitions Shop (Cabrera Services, Inc. 2006). Wessel (1995) states that Building B was used as a weapons maintenance shop. Building B is a single-story, rectangular-planned structure that features a reinforced concrete foundation, concrete walls, and a flat roof (Plate 23). The building features a concrete platform along the north and south façades (Plates 24 and 25). The platform along the north façade is accessed via a ramp on its east side (Plate 26) and a small metal staircase on its west side (Plate 27). The platform along the south façade exhibits two concrete staircases on either side (Plates 28 and 29).





**BFSA Environmental Services**  
A Perennial Company

**Plate 8**  
**Location Map for Igloos A1 to A14**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 9**  
**Munitions Storage Igloos A11 to A14, Facing Northeast**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 10**  
**East Façade of Igloo A1, Facing Northwest**  
The West Campus Upper Plateau Project







**Plate 11**  
**West Façade of Igloo A10, Facing Southeast**  
The West Campus Upper Plateau Project







**Plate 12**  
**West Façade of Igloo A12, Facing East**  
The West Campus Upper Plateau Project







**Plate 13**  
**Interior View of the Double Doors on the**  
**West Façade of Igloo A12, Facing Northwest**  
The West Campus Upper Plateau Project





**Plate 14**  
**West Façade of Igloo A14, Facing East**  
The West Campus Upper Plateau Project







**Plate 15**  
**East Façade of Igloo A9, Facing West**  
The West Campus Upper Plateau Project







**Plate 16**  
**East Façade of Igloo A5, Facing Southwest**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 17**  
**West Façade of Igloos A13, Facing Northeast**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 18**  
**North (Left) and West (Right) Façades of Igloo A10, Facing Southeast**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 19**  
**West (Left) and South (Right) Façades of Igloo A14, Facing Northeast**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 20**  
**Interior View of Igloo A9, Facing West**  
The West Campus Upper Plateau Project







**Plate 21**  
**Interior View of Igloo A12, Facing East**  
The West Campus Upper Plateau Project





**Plate 22**  
**Interior View of Igloo A12, Facing East**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 23**  
**North Façade of Building B, Facing Southeast**  
The West Campus Upper Plateau Project







**Plate 24**  
**North Façade of Building B, Facing Southeast**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 25**  
**South Façade of Building B, Facing Northeast**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 26**  
**East Façade of Building B, Facing Northwest**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 27**  
**North Façade of Building B, Facing South**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 28**  
**West Façade of Building B, Facing Northeast**  
The West Campus Upper Plateau Project







**Plate 29**  
**East Façade of Building B, Facing Northwest**  
The West Campus Upper Plateau Project



The north and south façades of the building feature double metal doors, single metal doors, and single-hung windows (Plates 30 to 32). The east façade of the building does not feature any elements (Plate 33) and the west façade features two single-hung windows (Plate 34).

### Buildings C and D

Buildings C and D are located south of Building B. Buildings C and D were constructed between 1955 and 1956 and classified as a Base Supply and Equipment Warehouse and a Base Supply and Equipment Shed, respectively (Cabrera Services, Inc. 2006). Wessel (1995) notes that Buildings C and D were used as weapons maintenance shops. Building C (Plate 35) is located south of Building D (Plate 36). They are both single-story, rectangular-planned structures that feature reinforced concrete foundations, masonry walls, and flat roofs (Plate 37). The roof of Building C is currently collapsed. Both buildings feature loading doors on their west façades (Plate 38). A small power distribution unit is attached to Building D on its east façade (Plate 39).

### Building E

Building E is located east of Building B (Plate 40). Building E was constructed between 1955 and 1956 and classified as a Maintenance and Inspection Shop (Cabrera Services, Inc. 2006). Wessel (1995) notes that Building E was used as a weapons maintenance shop. Building E is a single-story, rectangular-planned structure with a projection on its north façade. The building features a reinforced concrete foundation, masonry walls, and a flat roof. The north and south façades feature loading doors (Plates 41 to 43) and the east and west façades do not feature any elements (Plates 44 and 45).

### Buildings F and G

Buildings F and G are located in the northeast corner of the WSA. Building F and G were constructed between 1955 and 1956 and classified as a Security Police Entry Control Building and Base Supply and Equipment Shed, respectively (Cabrera Services, Inc. 2006) (Plates 46 and 47). Both buildings are single-story structures with irregular rectangular plans. Both feature flat roofs, reinforced concrete foundations, and masonry walls (Plate 48). Wood-framed doors, windows, and loading doors are featured in both buildings (Plates 49 and 50). Building G also exhibits aluminum vents attached on its west façade (Plate 51).







**Plate 30**  
**North Façade of Building B, Facing South**  
The West Campus Upper Plateau Project





**Plate 31**  
**North Façade of Building B, Facing South**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 32**  
**South Façade of Building B, Facing Northeast**  
The West Campus Upper Plateau Project







**Plate 33**  
**East Façade of Building B, Facing West**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 34**  
**West (Left) and South (Right) Façades of Building B, Facing Northeast**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 35**  
**Southwest Corner of Building C, Facing Northeast**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 36**  
**West Façade of Building D, Facing East**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 37**  
**West (Left) and South (Right) Façades of Buildings C and D, Facing Northeast**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 38**  
**West Façades of Buildings C (Right) and D (Left), Facing Northeast**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 39**  
**East Façades of Buildings C (Left) and D (Right), Facing Northwest**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 40**  
**North Façade of Building E, Facing Southwest**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 41**  
**North Façade of Building E, Facing Southwest**  
The West Campus Upper Plateau Project







**BfSA Environmental Services**  
A Perennial Company

**Plate 42**  
**North Façade of Building E, Facing Southeast**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 43**  
**South (Left) and East (Right) Façades of Building E, Facing Northwest**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 44**  
**East (Left) Façade of Building E, Facing Southwest**  
The West Campus Upper Plateau Project





**BFSA Environmental Services**  
A Perennial Company

**Plate 45**  
**West (Left) Façade of Building E, Facing Northeast**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 46**  
**West (Left) and South (Right) Façades of Building F, Facing Northeast**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 47**  
**South (Left) and East (Right) Façades of Building G, Facing Northwest**  
The West Campus Upper Plateau Project







**BFS Environmental Services**  
A Perennial Company

**Plate 48**  
**West Façade of Building F, Facing Northeast**  
The West Campus Upper Plateau Project







**Plate 49**  
**East Façade of Building G, Facing West**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 50**  
**East Façade of Building G, Facing Northwest**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 51**  
**North (Left) and West (Right) Façades of Building G, Facing Southeast**  
The West Campus Upper Plateau Project





## V. **SIGNIFICANCE EVALUATIONS**

Because the MJPA is the lead agency for the project, the 2022 MJPA CEQA Guidelines and CRHR and NRHP historic resources eligibility criteria were used to evaluate the WSA buildings.

### **2022 MJPA CEQA Guidelines Section 11.28**

The 2022 MJPA CEQA Guidelines conform to the requirements set forth in the State CEQA Guidelines, 14 CCR 15064.5(a). According to Section 11.28 “Historical Resources,” “Resources listed in, or eligible for listing in, the California Register of Historical Resources [CRHR] shall be considered historical resources.”

A resource may be listed in the CRHR if it meets any of the following NRHP criteria:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- (2) Is associated with the lives of persons important in our past;
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- (4) Has yielded, or may be likely to yield, information important in prehistory or history.

A resource may also be listed in the CRHR if it is identified as significant in an historical resource survey that meets all of the following criteria:

- (1) The survey has been or will be included in the State Historic Resources Inventory;
- (2) The survey and the survey documentation were prepared in accordance with office procedures and requirements; and
- (3) The resource is evaluated and determined by the office to have a significance rating of Category 1 to 5 on DPR Form 523.

Resources included on a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution, or identified as significant in an historical resource survey (as described above) are presumed to be historically or culturally significant, unless a preponderance of evidence demonstrates that they are not historically or culturally significant.

Any of the following may be considered historically significant: any object, building, structure, site, area, place, record or manuscript which a Lead Agency determines, based upon substantial evidence in light of the whole record, to be historically significant or significant in the

architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California.

The Lead Agency is not precluded from determining that a resource is a historical resource, as defined in Public Resources Code sections 5020.1(j) or 5024.1, even if it is: (a) not listed in, or is not determined to be eligible for listing in, the CRHR; (b) not included in a local register of historical resources; or (c) not identified in an historical resources survey.

### **CRHR Criteria**

According to CEQA (14 CCR §15064.5[a]), the term “historical resource” includes the following:

- 1) A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the CRHR (Public Resources Code [PRC] SS5024.1, Title 14 CCR. Section 4850 et seq.).
- 2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- 3) Any object, building, structure, site, area, place, record, or manuscript, which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency’s determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be “historically significant” if the resource meets the criteria for listing on the CRHR (PRC SS5024.1, Title 14, Section 4852) including the following:
  - a) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
  - b) Is associated with the lives of persons important in our past;
  - c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
  - d) Has yielded, or may be likely to yield, information important in prehistory or history.

- 4) The fact that a resource is not listed in, or determined eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to Section 5020.1[k] of the PRC), or identified in an historical resources survey (meeting the criteria in Section 5024.1[g] of the PRC) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

### **NRHP Criteria**

The four primary evaluation criteria to determine a resource's eligibility for the NRHP, in accordance with the regulations outlined in 36 CFR 800, are identified by 36 CFR 60.4. These criteria (listed below) are used to facilitate the determination of which properties should be considered for protection from destruction or impairment resulting from project-related impacts (36 CFR 60.2). These include impacts to the quality of significance in American history, architecture, archaeology, engineering, and culture present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. Resources that are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. Resources that are associated with the lives of persons significant in our past; or
- C. Resources that embody 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. Resources that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

“For a property to qualify for the National Register it must meet one of the National Register Criteria for Evaluation by:

- **Being associated with an important historic context *and***
- **Retaining historic integrity of those features necessary to convey its significance.”** (Andrus and Shrimpton 2002)

### **CRHR/MJPA/NRHP Evaluation**

- **CRHR/MJPA/NRHP Criterion 1/Criterion A:**  
*It is associated with events that have made a significant contribution to the broad patterns of California history and cultural heritage/our history.*



As explained in the *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Andrus and Shrimpton 2002), to determine the significance of a property's associative values, it is necessary to:

- Determine the nature and origin of the property,
- Identify the historic context with which it is associated, and
- Evaluate the property's history to determine whether it is associated with the historic context in any important way.

Mere association with historic events or trends is not enough; the property's *specific* association must also be considered important.

Historical research revealed that the WSA buildings were constructed after World War II, between 1948 and 1956. While portions of March AFB east of I-215 were previously found eligible for listing on both the NRHP and CRHR due to their significance during World War I and World War II, the same cannot be said for the WSA as it did not exist during these periods. The WSA was developed and used during the Cold War under the jurisdiction of SAC. March AFB remained a SAC base for 44 years, serving as the headquarters of the 15 AF (Wessel 1995).

As the 20 WSA buildings were constructed after World War II, they are evaluated with respect to the theme "Cold War" with a period of significance between 1948 and 1956. Due to the national significance of the Cold War, buildings constructed during this period are appropriately evaluated within a national geographic boundary (Wessel 1995). In order to be eligible for the NRHP, any military-related construction is appropriately evaluated with respect to its national significance (Wessel 1995). The 20 WSA buildings were included in a historic evaluation of March AFB with respect to its importance during the Cold War (Wessel 1995). Wessel (1995) utilized criteria defined by "Interim Guidance: Treatment of Cold War Historic Properties for U.S. Air Force Installations" prepared by the United States Air Force in 1993 (Wessel 1995:2–2).

Wessel (1995) only found one of the March AFB buildings, the Combat Operations Center, which served as the command center for 10 SAC bases, as eligible for the National Register due to its engineering qualities and exceptional historical significance. The remainder of the buildings consist of secondary structures such as nose docks, maintenance shops, and storage areas, including the 20 WSA buildings, which were evaluated as not significant due to the relatively insignificant role they played during the Cold War within the national context (Wessel 1995).

Comparatively, Travis Air Force Base includes munitions storage igloos as part of the Travis AFB ADC Readiness National Register Historic District Area. The Travis AFB igloos were part of the “Q Area” and its structures tied to the assembly, checkout, and storage of the first atomic and thermonuclear, or hydrogen, bombs evocative of the emerging Cold War era (National Park Service n.d.).

The nationwide geographical boundary for Cold War facilities is still applicable and the WSA buildings are appropriately evaluated based upon their associations with events that made a significant contribution to patterns of national history. Historical research did not show that the WSA buildings, individually or collectively, are strongly associated with any significant Cold War events at the national, state, or regional level and were likely used for routine munitions storage (Igloos A1 to A14) and maintenance activities (Buildings B to G). This evaluation confirms Wessel’s (1995) findings that the WSA buildings are evaluated as not eligible under NRHP Criterion A and further finds that the WSA buildings are evaluated as not eligible under CRHR and MJPA Criterion 1.

- **CRHR/MJPA Criterion 2/NRHP Criterion B:**

*It is associated with the lives of persons important/significant in our past.*

As explained in the *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Andrus and Shrimpton 2002), persons “significant in our past” refers to individuals whose activities are demonstrably important within a local, state, or national historic context and eligible properties are generally restricted to those that best represent a person’s important achievements.

Historical research revealed that the WSA buildings, individually and collectively, are not associated with the lives of any persons important to local, California, or national history. Therefore, the WSA buildings, individually and collectively, are evaluated as not eligible under CRHR and MJPA Criterion 2 or NRHP Criterion B.

- **CRHR/MJPA Criterion 3/NRHP Criterion C:**

*It embodies the distinctive characteristics of a type, period, region, or method of construction, or that represents the work of an important creative individual/represent a significant and distinguishable entity whose components may lack individual distinction, or possesses high artistic values.*

The designers, architects, and builders of the WSA buildings are unknown. Further, the WSA buildings do not possess high artistic values. Therefore, this evaluation

focuses upon whether the WSA buildings embody the distinctive characteristics of a type, period, region, or method of construction.

Igloos A1 to A9 were constructed between 1948 and 1953 and Igloos A10 to A14 were constructed between 1953 and 1962 in the Utilitarian style as munitions storage igloos. Buildings B, C, D, E, F, and G were constructed between 1955 and 1956 (Cabrera Services, Inc. 2006) in the Utilitarian style as weapons maintenance shops supporting the WSA.

As the MJPA does not have a historic context statement that addresses the Utilitarian style, the most relevant context statement can be found in the Barrio Logan Historical Resources Survey (Smith et al. 2011):

Utilitarian style refers to buildings whose architecture is significantly determined by the use of the building. For instance, a utilitarian-style manufacturing facility may have a particular roof built to accommodate the interior crane. Utilitarian-style structures are of various sizes, roof styles and clad in different materials (often corrugated metal or masonry), but what distinguishes them is that the builder has made no attempt to impose any detailing or ornamentation besides those that are deemed necessary for the business of the building (Bradley 1999).

While Buildings B to G can best be defined as having been constructed in the Utilitarian style, there is nothing unique or distinctive about their design and construction in relation to their use as maintenance shops.

Igloos A1 to A14 feature a barrel-shaped construction covered with earth. In terms of their construction, the WSA igloos exhibit typical characteristics of explosive magazines constructed during World War II between 1939 and 1945. While Igloos A1 to A14 feature reinforced concrete construction and barrel-arched bodies, they were constructed after the period of significance for the World War II munitions storage construction type and technique and would not be considered significant examples of barrel-shaped igloos.

The barrel-shaped igloo design was extensively used by the United States military in the construction of munitions storage facilities before it was replaced by “Stradley”-style magazines in the 1950s. However, Igloos A1 to A14 are not examples of “Stradley”-style magazines.

Nau (2006) also mentions that munitions storage igloos might be significant if they exhibit features reflecting changes in ammunition storage as a result of the Cold War. Igloos A1 to A14, however, fail to show the stylistic and technical transition between barrel-shaped and “Stradley”-style igloos and, therefore, would not be considered significant examples.

Bases with Cold War-era weapons storage igloos evaluated as eligible for listing on the National Register include Barksdale AFB in Louisiana; Ellsworth AFB in South Dakota; Fairchild AFB in Washington; and Fort McClellan Ammunition Storage Historic District in Alabama. The storage igloos at Barksdale AFB and Ellsworth AFB that were found eligible for NRHP listing are overground magazines constructed at the beginning of the Cold War and are one of the early examples of munitions storage igloos associated with the Cold War (Lowe et al. 1997a, 1997b). While the Fairchild AFB storage igloo is an underground bunker, it features a false fenestration on the upper level to simulate a building, concealing its true function, which gives it a unique significance in terms of design and function, as bunkers with false fenestration are relatively rare (Lowe et al. 1997c). The weapons storage magazines at Fort McClellan feature two different styles, showing how the storage igloos evolved over time. This unique character allows the transformation of the weapons storage facilities to be observed in terms of their design and construction (Schneider and Anderson 2005). In comparison, Igloos A1 to A14 are not early examples of weapons storage structures, do not feature a unique architectural or engineering quality, and do not show the evolution of igloo construction technology.

After determining SAC bomber bases consisted of virtually identical components, Wessel (1995) compared the potentially significant structures at March AFB to the Cold War-era buildings at Loring AFB in Maine and Castle AFB in Atwater, California. When compared to Loring AFB and Castle AFB, the buildings at March AFB did not best represent the historical, architectural, and engineering qualities associated with SAC bomber bases. Castle AFB served as a training center for all B-52 and KC-135 pilots and crews and included a Christmas-tree-shaped runway designed by the United States Air Force for the SAC. Established in 1947, Loring AFB was the first newly designed base to support SAC operations. All previous SAC operations were conducted on existing facilities that were not specifically designed for SAC’s use (Wessel 1995). Both Loring AFB and Castle AFB feature better overall design unity than March AFB (Wessel 1995).

Igloos A1 to A14 are not unique or distinctive examples of munitions storage igloos in California or the local region and are among the most common military-related



weapons storage constructions. For example, similar igloos are regionally found at Fallbrook Ammunition Depot, Naval Weapons Station Seal Beach, and Marine Corps Air Station El Toro. Travis AFB includes munitions storage igloos as part of the Travis AFB ADC Readiness National Register Historic District Area. Munitions bunkers are also found at Beale Air Force Base in Marysville and Edwards Air Force Base in Edwards. Sierra Army Depot in Herlong includes over 800 munitions storage igloos and igloos remain from the closed Benicia Arsenal in Benicia.

Concord Naval Weapons Station in San Francisco includes a larger weapons storage area that features various underground and overground bunkers constructed in different periods and styles. This allows for observation of the evolution of the different styles and techniques used in the construction of the weapons storage areas. Although the WSA includes two different groups of igloos constructed during different periods, they were constructed using the same style and technique, not showing any evidence of a particular style, construction technique, or stylistic or technical evolution.

Therefore, the WSA buildings, individually or collectively, are evaluated as not eligible under CRHR and MJPA Criterion 3 or NRHP Criterion C.

- **CRHR/MJPA Criterion 4/NRHP Criterion D:**

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

As explained in the *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Andrus and Shrimpton 2002), a property is eligible if it has been used as a source of data and contains more as yet unretrieved data or if it has not yet yielded information but, through testing or research, is determined a likely source of data. Information is “important” when it is shown to have a significant bearing on a research design that addresses such areas as (1) current data gaps or alternative theories that challenge existing ones, or (2) priority areas identified under a state or federal management plan (Andrus and Shrimpton 2002).

Historical research has not revealed the WSA buildings as sources of data or likely sources of data important in the prehistory or history of the region, state of California, or the nation. Therefore, the WSA buildings, individually or collectively, are evaluated as not eligible under CRHR or MJPA Criterion 4 or NRHP Criterion D.

### **Integrity Analysis**

When evaluating a historic resource, integrity is the authenticity of the resource’s physical identity clearly indicated by the retention of characteristics that existed during its period of

significance. It is important to note that integrity is not the same as condition. Integrity directly relates to the presence or absence of historic materials and character-defining features, while condition relates to the relative state of the physical deterioration of a resource. In most instances, integrity is more relevant to the significance of a resource than condition; however, if a resource is in such poor condition that original materials and features may no longer be salvageable, then the resource's integrity may be adversely impacted.

BFSA based the integrity review upon the recommended criteria listed in the *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Andrus and Shrimpton 2002). The review below is based upon the evaluation of integrity of the buildings followed by the assessment of distinctive characteristics:

1. **Integrity of Location** [*refers to*] *the place where the historic property was constructed or the place where the historic event occurred* (Andrus and Shrimpton 2002). Integrity of location was assessed by reviewing historical records and aerial photographs in order to determine if the WSA buildings had always existed at their present locations or if they had been moved, rebuilt, or their footprints significantly altered. Historical research revealed that the WSA buildings were constructed in their current locations between 1948 and 1956. Therefore, the WSA buildings, individually and collectively, retain integrity of location.
2. **Integrity of Design** [*refers to*] *the combination of elements that create the form, plan, space, structure, and style of a property* (Andrus and Shrimpton 2002). Integrity of design was assessed by evaluating the spatial arrangement of the buildings and any architectural features present.
  - a. *Igloos A1 to A14*: Igloos A1 to A9 were designed and constructed by an unknown architect and builder between 1948 and 1953 in the Utilitarian style as munitions storage igloos. Igloos A10 to A14 were designed and constructed by an unknown architect and builder between 1953 and 1962 in the Utilitarian style as munitions storage igloos. These structures feature a barrel-shaped construction covered with earth. This barrel-shaped igloo design was extensively used by the United States military in the construction of munitions storage facilities before it was replaced by "Stradley"-style magazines. Historical research concludes that the igloos have not undergone significant modifications since their initial construction. Therefore, the overall form, plan, space, and structure of Igloos A1 to A14 have been preserved and they retain integrity of design.
  - b. *Buildings B, D, E, F, and G*: Buildings B, D, E, F, and G were constructed between 1955 and 1956 in the Utilitarian style as weapons maintenance shops supporting the WSA. The designer, architect, and builder of these buildings are unknown.

Historical research concludes that Buildings B, D, E, F, and G have not undergone significant modifications since their initial construction. Therefore, the overall form, plan, space, and structure of the original buildings have been preserved and they retain integrity of design.

- c. **Building C:** Building C was constructed between 1955 and 1956 in the Utilitarian style as a weapons maintenance shop supporting the WSA. The designer, architect, and builder of the building are unknown. Historical research concludes that Building C has not undergone significant modifications since its initial construction, but the roof of the building has collapsed. While the overall plan and space of the original building remain unchanged, the absence of the roof causes the loss of the original form and structure. Therefore, Building C does not retain integrity of design.
  - d. **WSA Buildings:** Collectively, the WSA buildings retain integrity of design.
3. **Integrity of Setting** [*refers to*] *the physical environment of a historic property. Setting includes elements such as topographic features, open space, viewshed, landscape, vegetation, and artificial features* (Andrus and Shrimpton 2002). Integrity of setting was assessed by inspecting the elements of the property, which include topographic features, open space, views, landscape, vegetation, man-made features, and relationships between the buildings and other features. According to aerial photographs, most of the buildings located within the WSA were constructed between 1948 and 1962 (see Plates 3 and 5 to 7). The 1938 aerial photograph indicates that prior to the construction of the WSA, this area was vacant. The aerial photographs of the area that date back to 1948 are heavily redacted, but the visible parts indicate the area south of the WSA started to develop between 1938 and 1948 (see Plates 2 and 3). While the 1953 aerial photograph shows some developments in the areas west and east of the WSA, the immediate surroundings of the WSA remained undeveloped (see Plate 4). Aerial imagery from 1967 indicates that the residential development surrounding the WSA on the north, south, and west started between 1962 and 1967 (see Plates 5 and 6). By 1978, weapons storage structures constructed between 1938 and 1948 and located east of the extant igloo structures were removed (see Plate 7). The residential development surrounding the WSA continued through the mid-1990s and took its current form, including industrial development to the west, by 2002 (see Plates 52 to 54). Currently, the WSA is surrounded by moderate-density residential and industrial development and is no longer recognizable as a vacant and rural community (Plate 55). Since the property no longer retains the same open space, viewshed, landscape, vegetation, or general built environment, none of the WSA buildings, individually or collectively, retain integrity of setting.



**Legend**  
[Blue Outline] Weapons Storage Area



**BFS Environmental Services**  
A Perennial Company

**Plate 52**  
**1985 Aerial Photograph**  
The West Campus Upper Plateau Project







**Legend**  
[Blue Outline] Weapons Storage Area



**BFS Environmental Services**  
A Perennial Company

**Plate 53**  
**1994 Aerial Photograph**  
The West Campus Upper Plateau Project







**BFSA Environmental Services**  
A Perennial Company

**Plate 54**  
**2002 Aerial Photograph**

The West Campus Upper Plateau Project









**Legend**  
[Blue Outline] Weapons Storage Area



**BFSA Environmental Services**  
A Perennial Company

**Plate 55**  
**Current Aerial Photograph**  
The West Campus Upper Plateau Project





4. **Integrity of Materials** [*refers to*] the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property (Andrus and Shrimpton 2002). Integrity of materials was assessed by determining the presence or absence of original building materials, as well as the possible introduction of materials that may have altered the architectural design of the buildings.

- a. Igloos A1 to A14: Igloos A1 to A9 were designed and constructed by an unknown architect and builder between 1948 and 1953 in the Utilitarian style as munitions storage igloos. Igloos A10 to A14 were designed and constructed by an unknown architect and builder between 1953 and 1962 in the Utilitarian style as munitions storage igloos.

These structures feature a barrel-shaped construction covered with earth. This barrel-shaped igloo design was extensively used by the United States military in the construction of munitions storage facilities before it was replaced by “Stradley”-style magazines. Historical research concludes that the igloos have not undergone substantial modifications since their initial construction that would have introduced or modified materials. Therefore, Igloos A1 to A14 retain integrity of materials.

- b. Buildings B, D, E, F, and G: Buildings B, D, E, F, and G were constructed between 1955 and 1956 in the Utilitarian style as weapons maintenance shops supporting the WSA. The designer, architect, and builder of these buildings are unknown. Historical research concludes that Buildings B, D, E, F, and G have not undergone significant modifications since their initial construction that would have introduced or modified materials. Therefore, Buildings B, D, E, F, and G retain integrity of materials.
- c. Building C: Building C was constructed between 1953 and 1962 in the Utilitarian style as a weapons maintenance shop supporting the WSA. The designer, architect, and builder of the building are unknown. Historical research concludes that Building C has not undergone significant modifications since its initial construction that would have introduced new materials or modified any original materials. The roof of Building C has collapsed, causing the loss of the original materials used in the construction of the building. Therefore, Building C does not retain integrity of materials.
- d. WSA Buildings: Collectively, the WSA buildings retain integrity of materials.

5. **Integrity of Workmanship** [*refers to*] the physical evidence of the labor and skill of a particular culture or people during any given period in history (Andrus and



- Shrimpton 2002). Integrity of workmanship was assessed by evaluating the quality of the architectural features present. The original workmanship demonstrated in the construction of the buildings has been well maintained. The buildings, however, do not reflect the labor or skill of a particular culture or people. Therefore, the WSA buildings, individually or collectively, have never possessed integrity of workmanship.
6. **Integrity of Feeling** [*refers to*] a property's expression of the aesthetic or historic sense of a particular period of time (Andrus and Shrimpton 2002). Integrity of feeling was assessed by evaluating whether or not the resources' features, in combination with their setting, conveyed a historic sense of the property during the period of significance. Although the WSA's period of significance was the Cold War, Igloos A1 to A14 were constructed in the same style as World War II igloos and Buildings B to G were constructed in the Utilitarian style with no distinctive features related to their use. The WSA buildings' features do not express a historic sense of the Cold War. Therefore, the WSA buildings, individually or collectively, have never possessed integrity of feeling.
  7. **Integrity of Association** [*refers to*] the direct link between an important historic event or person and a historic property (Andrus and Shrimpton 2002). Integrity of association was assessed by evaluating if the resources represent the place where the historic event or activity occurred and are sufficiently intact to convey that relationship to an observer. As discussed under CRHR and MJPA Criteria 1 and 2/NHRP Criteria A and B, the WSA buildings, individually or collectively, are not associated with an important historic event or person and, therefore, have never possessed integrity of association.

Of the seven aspects of integrity, Igloos A1 to A14, Buildings B, D, E, F, and G, and the WSA buildings, collectively, were determined to retain integrity of location, design, and materials. Building C was determined to only retain integrity of location. None of the buildings, individually or collectively, retain integrity of setting, and they never possessed integrity of workmanship, feeling, or association.

## **VI. FINDINGS AND CONCLUSIONS**

The current survey evaluated Igloos A1 to A14, Buildings B, C, D, E, F, G, and the WSA buildings, collectively. All WSA buildings meet the minimum 45-year age threshold to be considered historic and were evaluated under MJPA, CRHR, and NRHP criteria. The WSA buildings, individually or collectively:

- Are not strongly associated with any significant Cold War events at the national, state, or regional level.

- Are not associated with the lives of any persons important to local, California, or national history.
- Do not have distinctive characteristics of a type, period, region, or method of construction, do not represent the work of an important creative individual/entity, and do not possess high artistic values.
- Are not sources of data or likely sources of data important in the prehistory or history of the region, state, or nation.

Of the seven aspects of integrity, Igloos A1 to A14, Buildings B, D, E, F, and G, and the WSA buildings, collectively, were determined to retain integrity of location, design, and materials. Building C was determined to only retain integrity of location. None of the WSA buildings retain integrity of setting, and they never possessed integrity of workmanship, feeling, or association.

Igloos A1 to A14, Buildings B to G, and the WSA buildings, collectively, should not be considered Historical Resources under either MJPA, CRHR, or NRHP criteria. Therefore, removal of the WSA buildings would not constitute a potentially significant impact to historic resources within the Development Area. As such, no mitigation measures are recommended at this time. Separately, the project proposes to retain Igloos A13 and A14 within open space, which will be accessible to the public. A plaque describing the history of the WSA will also be erected adjacent to the retained igloos.

## **VII. CERTIFICATION**

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this historic structure assessment. This assessment is based upon the professional opinion of BFSA. Any conclusions or recommendations included herein may be changed or challenged by MJPA during the environmental review process.



---

Brian F. Smith, M.A.  
Consulting Historian

July 18, 2023

Date

## **VIII. BIBLIOGRAPHY**

Andrus, Patrick W. and Rebecca H. Shrimpton

2002 *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. U.S. Department of the Interior, National Park Service.

Bailey, Janet F.

1961 *The Growth of Riverside*. Unpublished thesis, University of California at Riverside,

Riverside Special Collections Department, Riverside, California.

Bean, Lowell John and Florence C. Shipek

- 1978 Luiseño. In *Handbook of North American Indians* (Vol. 8), California, edited by R.F. Heizer. Smithsonian Institution, Washington, D.C.

Beattie, George W. and Helen P. Beattie

- 1939 *Heritage of the Valley: San Bernardino's First Century*. Biobooks, Oakland, California.

Brigandi, Phil

- 1998 *Temecula: At the Crossroads of History*. Heritage Media Corporation, Encinitas, California.

Brown, J.B.

- 1985 *Harvest of the Sun: An Illustrated History of Riverside County*. Windsor Publications, Northridge, California.

Cabrera Services, Inc.

- 2006 Draft Preliminary Assessment and Site Inspection Report for the Former Weapons Storage Area, Mark Air Force Base, Riverside, California. Prepared for and on file with the U.S. Air Force Institute for Operation Health, Brooks City-Base, Texas.

Caughey, John W.

- 1970 *California, A Remarkable State's Life History*. Prentice-Hall Inc., Englewood Cliffs, New Jersey.

Chapman, Charles E.

- 1921 *A History of California: The Spanish Period*. The Macmillan Company, New York.

Cook, Sherburne F.

- 1976 *The Conflict Between the California Indian and White Civilization*. University of California Press, Berkeley and Los Angeles, California.

Engelhardt, Zephyrin

- 1921 *San Luis Rey Mission, The King of the Missions*. James M. Barry Company, San Francisco, California.

Guinn, J.M.

- 1907 *A History of California and an Extended History of its Southern Coast Counties*. Historic Record Company, Los Angeles, California.

Gunther, Jane D.

- 1984 *Riverside County, California, Place Names*. Rubidoux Printing Co., Riverside, California.

Kroeber, A.L.

- 1976 *Handbook of the Indians of California*. Reprinted. Dover Editions, Dover Publications, Inc., New York. Originally published 1925, Bulletin No. 78, U.S. Government Printing Office, Washington, D.C.

March Air Reserve Base

- 2010 The March Field Story. Electronic document, <https://www.march.afrc.af.mil/About-Us/Fact-Sheets/Display/Article/167413/the-march-field-story/>, accessed August 14, 2020.

Morton, D.M. and B. Cox

- 2001 Geologic map of the Riverside East 7.5' quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 01-452, scale 1:24,000.

Nau, John L.

- 2006 Program Comment for World War II and Cold War Era (1939 – 1974) Ammunition Storage Facilities. Advisory Council on Historic Preservation, Washington, D.C.

National Park Service

- N.d. Travis Air Dorce Base, North of California State Highway 12, Fairfield, Solano County, California (HABS No. CA-2669). Photographs, Written Historical and Description Data on file at the Library of Congress.

Natural Resources Conservation Service (NRCS)

- 2019 Web Soil Survey. Electronic document, <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>, accessed December 18, 2022.

Patterson, Tom

- 1971 *A Colony for California: Riverside's First Hundred Years*. Press-Enterprise, Riverside, California.

Pourade, Richard F.

- 1961 *Time of the Bells*. The History of San Diego Volume 2. Union-Tribune Publishing Company, San Diego, California.

- 1963 *The Silver Dons*. The History of San Diego Volume 3. Union-Tribune Publishing Company, San Diego, California.

Rolle, Andrew F.

- 1969 *California: A History* (Second Edition). Thomas Y. Crowell Company, New York.

Schneider, David and Anderson, Christy

- 2005 National Register of Historic Places Registration Form for the Fort McClellan Ammunition Storage Historic District. Document on file at the United States Department of the Interior.



Schroth, Adella B.

- 1998 Review of Traditional Cultural Properties and Ethnography of the March Joint Powers Authority Planning Area. LSA Associates, Inc. Unpublished report on file at the Eastern Information Center at the University of California at Riverside, Riverside, California.

Stonehouse, Merlin

- 1965 *John Wesley North and the Reform Frontier*. University of Minnesota Press, Minneapolis, Minnesota.

U.S. Census Bureau

- 2010 2010 Census of Population and Housing, Population and Housing Unit Counts, CPH-2-1, United States Summary. U.S. Government Printing Office, Washington, D.C., 2012. Electronic document, <https://www.census.gov/prod/cen2010/cph-2-1.pdf>, accessed August 14, 2020.

Wessel, Terri Caruso

- 1995 Historic Building Inventory and Evaluation, March Air Force Base, Riverside County, California. William Manley Consulting and EARTH TECH. Submitted to and on file with the U.S. Department of the Air Force, Brooks Air Force Base, Texas.

## **IX. APPENDICES**

Appendix A – Site Record Forms

Appendix B – Maps

Appendix C – Preparer’s Qualifications

**APPENDIX A**

**Ownership and Occupant Information**

Other Listings  
Review Code

Reviewer

Date

Page 1 of 4

\*Resource Name or #: WSA Buildings

**P1. Other Identifier:**

\*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: *Riverside East, California*

Date: 1974 T 2 S; R 4 W of Sec 15, 16, 17, 20, and 21; M.D. B.M.

c. Address: March Field Air Reserve Base, West Campus

City: Riverside Zip: 92518

d. UTM: Zone: mE/ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): The project is located within Assessor's Parcel Numbers (APNs) 297-090-001, -002, -003, and -009. The project is located in the northwestern portion of March ARB between Interstate 215 (I-215) and Trautwein Road, southwest of the intersection of Meridian Parkway and East Alessandro Boulevard in an unincorporated portion of Riverside County.

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

Igloos A1 to A14

According to historic aerial photographs, the eastern underground igloo-style magazines (Igloos A1 to A9) were constructed between 1948 and 1953, and the western ones (Igloos A10 to A14) were constructed between 1953 and 1962. This weapons storage complex consists of 14 structures. The builders of these structures are unknown. Archival research and field investigations suggest that these structures were constructed according to military standard designs as approximately 25 feet in width by 80 feet long. These structures are not the Stradley design.

These igloos are barrel-shaped structures featuring reinforced concrete foundations and constructions. The wing walls of the igloos feature Huntsville-type primary façades truncated a few feet from the ground. These designs were typical of the period. The west (primary) façades of these igloos also feature heavy steel double-leaf swing doors. A variety of mechanical and security equipment is mounted on the west façade. Extending from an access road in front of each igloo is a paved unloading area. The earlier igloos (A1 to A9) feature a slight projection around the entrance of the structure. The later igloos (A10 to A14) feature a horizontal concrete cornice above the entry. The sloping sides of the west façade project beyond the vaulted concrete walls. The exterior surface of the vault is earth-covered. Intake vents, exhaust vents, and lightning rods are located on the crown of the arch at the exterior. While the earlier igloos feature square-shaped, multi-tier vents, the later igloos feature basic circular vents.

The interiors of these structures are bare and feature vaulted concrete walls. Lights and security equipment have been installed along the crown of the arch. Mechanical equipment has been installed on the wall at the entrance end of the igloo. Some of the later igloos (A11, A13, and A14) feature a secondary interior concrete vault structure. These secondary structures have rectangular plans and feature thick reinforced concrete walls. Originally, these vaults featured bank vault-type doors with double combination locks, which were removed in 1963 (Cabrera Services, Inc. 2006).

\*P3b. Resource Attributes: (List attributes and codes) HP34. Military property

P5a. Photo or Drawing



\*P4. Resources Present:

Building  Structure  Object  Site  District  
 Element of District  Other (Isolates, etc.)

\*P5b. Description of Photo: (View, date, accession #) General view of the munitions storage igloos, facing southwest, December 2022

\*P6. Date Constructed/Age and Sources: 1948 to 1962 (Aerial photographs; Cabrera Services, Inc. 2006)

Historic  Prehistoric  Both

\*P7. Owner and Address:

March Joint Powers Authority  
14205 Meridian Parkway #140  
Riverside, California 92518

\*P8. Recorded by: (Name, affiliation, and address)  
Irem Oz

BFSA Environmental Services, a Perennial Company  
14010 Poway Road, Suite A  
Poway, California 92064

\*P9. Date Recorded: 5/18/23

\*P10. Survey Type: (Describe)

Cultural Resources Survey

\*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Historic Structure Assessment for the West Campus Upper Plateau Project, Oz (2023)

\*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):

\*Recorded by: Irem Oz

\*Date: 5/18/23

Continuation  Update

Building B

Building B is located northeast of the igloos and is the westernmost weapons maintenance shop. Building B was constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) states that Building B was used as a weapons maintenance shop. Building B is a single-story, rectangular-planned structure that features a reinforced concrete foundation, concrete walls, and a flat roof. The building features a concrete platform along the north and south façades. The platform along the north façade is accessed via a ramp on its east side and a small metal staircase on its west side. The platform along the south façade exhibits two concrete staircases on either side. The north and south façades of the building feature double metal doors, single metal doors, and single-hung windows. The east façade of the building does not feature any elements and the west façade features two single-hung windows.

Buildings C and D

Buildings C and D are located south of Building B. Buildings C and D were constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) notes that Buildings C and D were used as weapons maintenance shops. Building C is located south of Building D. They are both single-story, rectangular-planned structures that feature reinforced concrete foundations, masonry walls, and flat roofs. The roof of Building C is currently collapsed. Both buildings feature loading doors on their west façades (Plate 38). A small power distribution unit is attached to Building D on its east façade.

Building E

Building E is located east of Building B. Building E was constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) notes that Building E was used as a weapons maintenance shop. Building E is a single-story, rectangular-planned structure with a projection on its north façade. The building features a reinforced concrete foundation, masonry walls, and a flat roof. The north and south façades feature loading doors and the east and west façades do not feature any elements.

Buildings F and G

Buildings F and G are located in the northeast corner of the WSA. Building F and G were constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) notes that Building F was used as a weapons maintenance shop but does not mention Building G. Both buildings are single-story structures with irregular rectangular plans. Both feature flat roofs, reinforced concrete foundations, and masonry walls. Wood-framed doors, windows, and loading doors are featured in both buildings. Building G also exhibits aluminum vents attached on its west façade.



**BUILDING, STRUCTURE, AND OBJECT RECORD**

\*Resource Name or #: WSA Buildings

B1. Historic Name: March Air Force Base West Campus

B2. Common Name: N/A

B3. Original Use: Weapons Storage

B4. Present Use: Fireworks Storage

\*B5. Architectural Style: Utilitarian

\*B6. Construction History: (Construction date, alterations, and date of alterations) Igloos A1 to A14 constructed between 1948 and 1962; Buildings A to G constructed between 1955 and 1956.

\*B7. Moved? No Yes Unknown Date: N/A Original Location: Same

\*B8. Related Features: None

B9a. Architect: Unknown

b. Builder: Unknown

\*B10. Significance

Theme: Military

Area: Riverside

Period of Significance: 1948 to 1962

Property Type: Military

Applicable Criteria: None

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

All WSA buildings meet the minimum 45-year age threshold to be considered historic and were evaluated under March Joint Powers Authority (MJPA), California Register of Historical Resources (CRHR), and National Register of Historic Places (NRHP) criteria. The WSA buildings, individually or collectively:

- Are not strongly associated with any significant Cold War events at the national, state, or regional level.
- Are not associated with the lives of any persons important to local, California, or national history.
- Do not have distinctive characteristics of a type, period, region, or method of construction, do not represent the work of an important creative individual/entity, and do not possess high artistic values.
- Are not sources of data or likely sources of data important in the prehistory or history of the region, state, or nation.

Of the seven aspects of integrity, Igloos A1 to A14 and Buildings B, D, E, F, and G were determined to retain integrity of location, design, and materials. Building C was determined to only retain integrity of location. None of the WSA buildings retain integrity of setting, and they never possessed integrity of workmanship, feeling, or association.

Igloos A1 to A14 and Buildings B to G should not be considered Historical Resources under either MJPA, CRHR, or NRHP criteria. Therefore, removal of most of the WSA buildings would not constitute a potentially significant impact to historic resources within the Development Area. Additionally, the project proposes to retain Igloos A13 and A14 within open space, which will be accessible to the public. A plaque describing the history of the WSA will also be erected adjacent to the retained igloos. As such, no mitigation measures are recommended at this time.

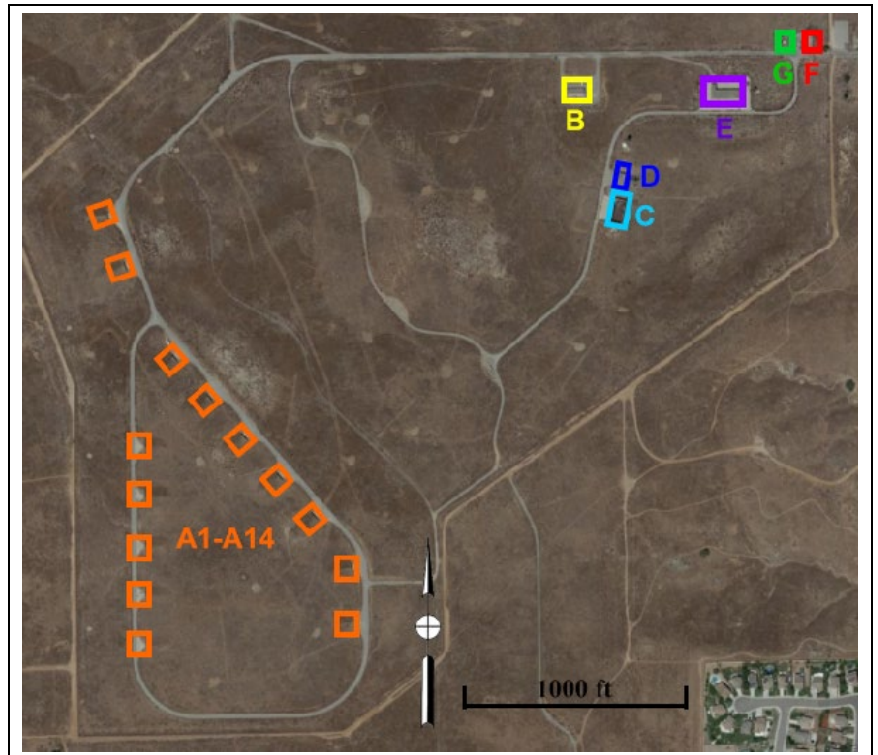
B11. Additional Resource Attributes (List attributes and codes): None

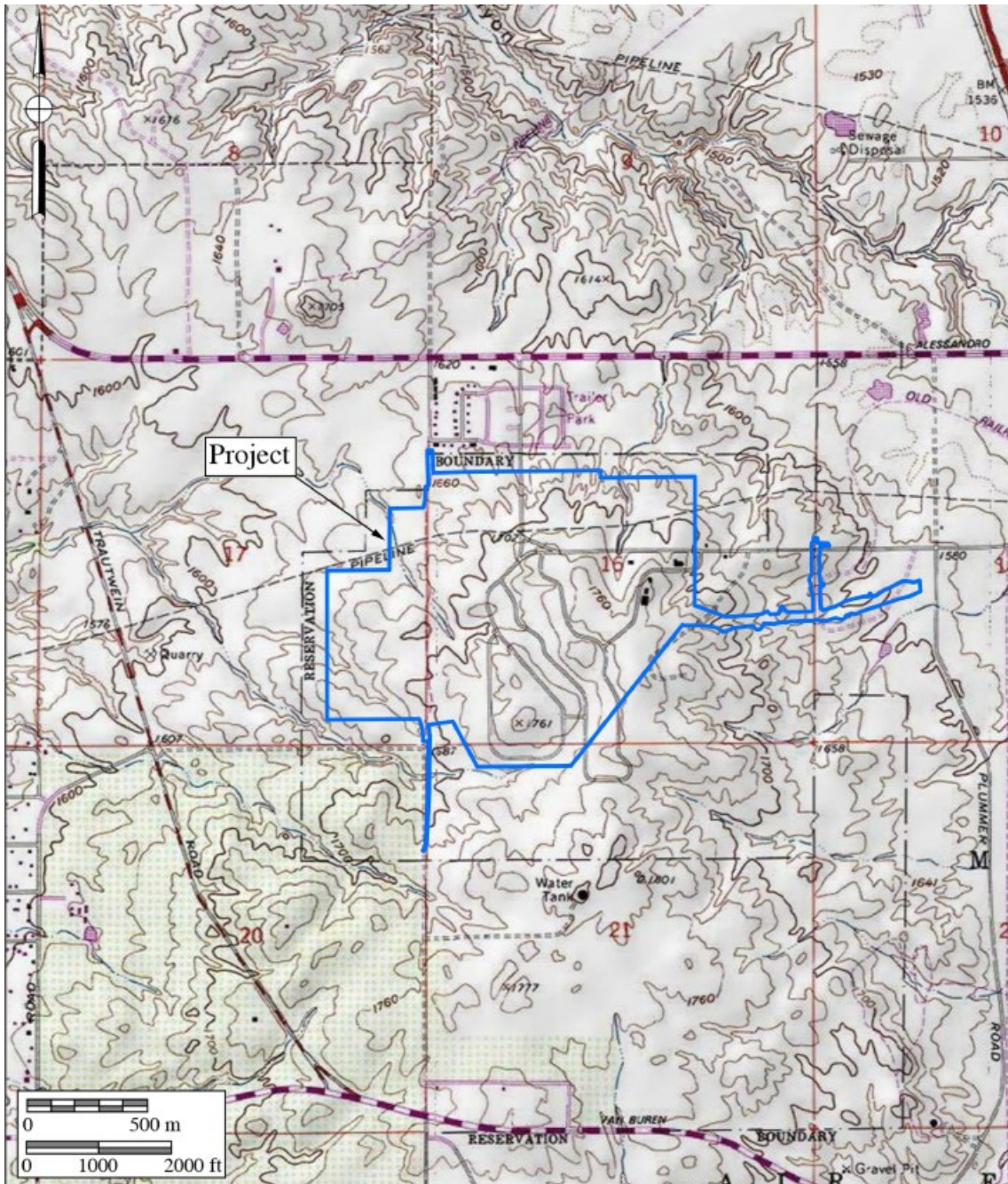
\*B12. References: Oz (2023)

B13. Remarks: None

\*B14. Evaluator: Irem Oz

\*Date of Evaluation: 5/18/23







Other Listings  
Review Code

Reviewer

Date

Page 1 of 4

\*Resource Name or #: Potential WSA Historic District

**P1. Other Identifier:**

\*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: *Riverside East, California* Date: 1974 T 2 S; R 4 W of Sec 15, 16, 17, 20, and 21; M.D. B.M.

c. Address: March Field Air Reserve Base, West Campus City: Riverside Zip: 92518

d. UTM: Zone: mE/ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): The project is located within Assessor's Parcel Numbers (APNs) 297-090-001, -002, -003, and -009. The project is located in the northwestern portion of March ARB between Interstate 215 (I-215) and Trautwein Road, southwest of the intersection of Meridian Parkway and East Alessandro Boulevard in an unincorporated portion of Riverside County.

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

Within the Development Area is a Cold War-era March Air Force Base Weapons Storage Area (WSA) with 20 structures. The potential historic district area includes Igloos A1 to A14 (munitions storage igloos) and Buildings B, C, D, E, F, and G (weapons maintenance and storage shops). The boundaries of the site were determined by the location of the buildings.

\*P3b. Resource Attributes: (List attributes and codes) HP34. Military property

P5a. Photo or Drawing



\*P4. Resources Present:

Building  Structure  Object  Site  District  
 Element of District  Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession #) General view of the munitions storage igloos, facing southwest, December 2022

\*P6. Date Constructed/Age and Sources: 1948 to 1962 (Aerial photographs; Cabrera Services, Inc. 2006)

Historic  Prehistoric  Both

\*P7. Owner and Address:

March Joint Powers Authority  
14205 Meridian Parkway #140  
Riverside, California 92518

\*P8. Recorded by: (Name, affiliation, and address)  
Irem Oz

BFSA Environmental Services, a Perennial Company  
14010 Poway Road, Suite A  
Poway, California 92064

\*P9. Date Recorded: 5/18/23

\*P10. Survey Type: (Describe)

Cultural Resources Survey

\*P11. Report Citation: (Cite survey report and other sources or enter "none.") Historic Structure Assessment for the West Campus Upper Plateau Project, Oz (2023)

\*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):

\*D3. Detailed Description (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.):

The potential historic district area includes Igloos A1 to A14 (munitions storage igloos) and Buildings B, C, D, E, F, and G (weapons maintenance and storage shops). All of the buildings were constructed in the Utilitarian style.

#### Igloos A1 to A14

According to historic aerial photographs, the eastern underground igloo-style magazines (Igloos A1 to A9) were constructed between 1948 and 1953, and the western ones (Igloos A10 to A14) were constructed between 1953 and 1962. This weapons storage complex consists of 14 structures. The builders of these structures are unknown. Archival research and field investigations suggest that these structures were constructed according to military standard designs as approximately 25 feet in width by 80 feet long. These structures are not the Stradley design.

These igloos are barrel-shaped structures featuring reinforced concrete foundations and constructions. The wing walls of the igloos feature Huntsville-type primary façades truncated a few feet from the ground. These designs were typical of the period. The west (primary) façades of these igloos also feature heavy steel double-leaf swing doors. A variety of mechanical and security equipment is mounted on the west façade. Extending from an access road in front of each igloo is a paved unloading area. The earlier igloos (A1 to A9) feature a slight projection around the entrance of the structure. The later igloos (A10 to A14) feature a horizontal concrete cornice above the entry. The sloping sides of the west façade project beyond the vaulted concrete walls. The exterior surface of the vault is earth-covered. Intake vents, exhaust vents, and lightning rods are located on the crown of the arch at the exterior. While the earlier igloos feature square-shaped, multi-tier vents, the later igloos feature basic circular vents.

The interiors of these structures are bare and feature vaulted concrete walls. Lights and security equipment have been installed along the crown of the arch. Mechanical equipment has been installed on the wall at the entrance end of the igloo. Some of the later igloos (A11, A13, and A14) feature a secondary interior concrete vault structure. These secondary structures have rectangular plans and feature thick reinforced concrete walls. Originally, these vaults featured bank vault-type doors with double combination locks, which were removed in 1963 (Cabrera Services, Inc. 2006).

#### Building B

Building B is located northeast of the igloos and is the westernmost weapons maintenance shop. Building B was constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) states that Building B was used as a weapons maintenance shop. Building B is a single-story, rectangular-planned structure that features a reinforced concrete foundation, concrete walls, and a flat roof. The building features a concrete platform along the north and south façades. The platform along the north façade is accessed via a ramp on its east side and a small metal staircase on its west side. The platform along the south façade exhibits two concrete staircases on either side. The north and south façades of the building feature double metal doors, single metal doors, and single-hung windows. The east façade of the building does not feature any elements and the west façade features two single-hung windows.

#### Buildings C and D

Buildings C and D are located south of Building B. Buildings C and D were constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) notes that Buildings C and D were used as weapons maintenance shops. Building C is located south of Building D. They are both single-story, rectangular-planned structures that feature reinforced concrete foundations, masonry walls, and flat roofs. The roof of Building C is currently collapsed. Both buildings feature loading doors on their west façades (Plate 38). A small power distribution unit is attached to Building D on its east façade.

#### Building E

Building E is located east of Building B. Building E was constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) notes that Building E was used as a weapons maintenance shop. Building E is a single-story, rectangular-planned structure with a projection on its north façade. The building features a reinforced concrete foundation, masonry walls, and a flat roof. The north and south façades feature loading doors and the east and west façades do not feature any elements.



Buildings F and G

Buildings F and G are located in the northeast corner of the WSA. Building F and G were constructed between 1955 and 1956 (Cabrera Services, Inc. 2006). Wessel (1995) notes that Building F was used as a weapons maintenance shop but does not mention Building G. Both buildings are single-story structures with irregular rectangular plans. Both feature flat roofs, reinforced concrete foundations, and masonry walls. Wood-framed doors, windows, and loading doors are featured in both buildings. Building G also exhibits aluminum vents attached on its west façade.

\*D4. Boundary Description (Describe limits of district and attach map showing boundary and district elements.):

The boundaries of the potential historic district are defined according to the locations of the buildings. The potential historic district extends south and west of Cactus Circle East and north and West of the access roads located around the WSA.

\*D5. Boundary Justification:

Weapons storage areas within military bases are usually located away from the majority of the other buildings. Following this, the potential WSA historic district is located northwest of March Air Force Base, away from the other buildings. The buildings located within the potential historic district form a natural boundary.

D6. Significance Theme: Military Area: Riverside

Period of Significance: 1948 to 1962

Applicable Criteria: None

(Discuss district's importance in terms of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.)

All WSA buildings meet the minimum 45-year age threshold to be considered historic and were evaluated under March Joint Powers Authority (MJPA), California Register of Historical Resources (CRHR), and National Register of Historic Places (NRHP) criteria. The WSA buildings, individually or collectively:

- Are not strongly associated with any significant Cold War events at the national, state, or regional level.
- Are not associated with the lives of any persons important to local, California, or national history.
- Do not have distinctive characteristics of a type, period, region, or method of construction, do not represent the work of an important creative individual/entity, and do not possess high artistic values.
- Are not sources of data or likely sources of data important in the prehistory or history of the region, state, or nation.

Of the seven aspects of integrity, Igloos A1 to A14, Buildings B, D, E, F, and G, and the WSA buildings, collectively, were determined to retain integrity of location, design, and materials. Building C was determined to only retain integrity of location. None of the WSA buildings retain integrity of setting, and they never possessed integrity of workmanship, feeling, or association.

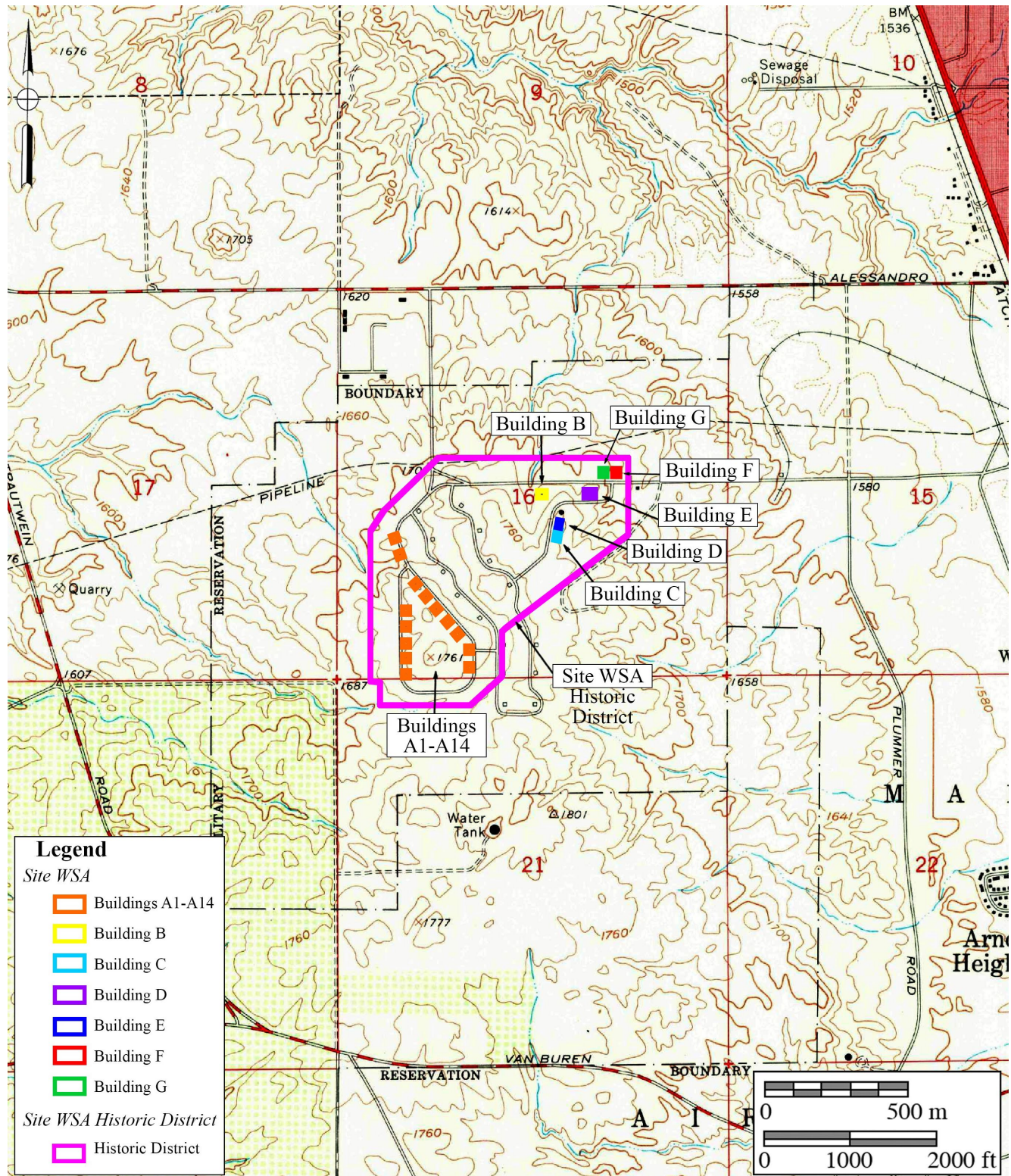
Igloos A1 to A14, Buildings B to G, and the WSA buildings, collectively, should not be considered Historical Resources under either MJPA, CRHR, or NRHP criteria. Therefore, removal of most of the WSA buildings would not constitute a potentially significant impact to historic resources within the Development Area. Additionally, the project proposes to retain Igloos A13 and A14 within open space, which will be accessible to the public. A plaque describing the history of the WSA will also be erected adjacent to the retained igloos. As such, no mitigation measures are recommended at this time.

\*D7. References (Give full citations including the names and addresses of any informants, where possible.):  
Oz (2032)

\*D8. Evaluator: Irem Oz

Date: 5/18/23

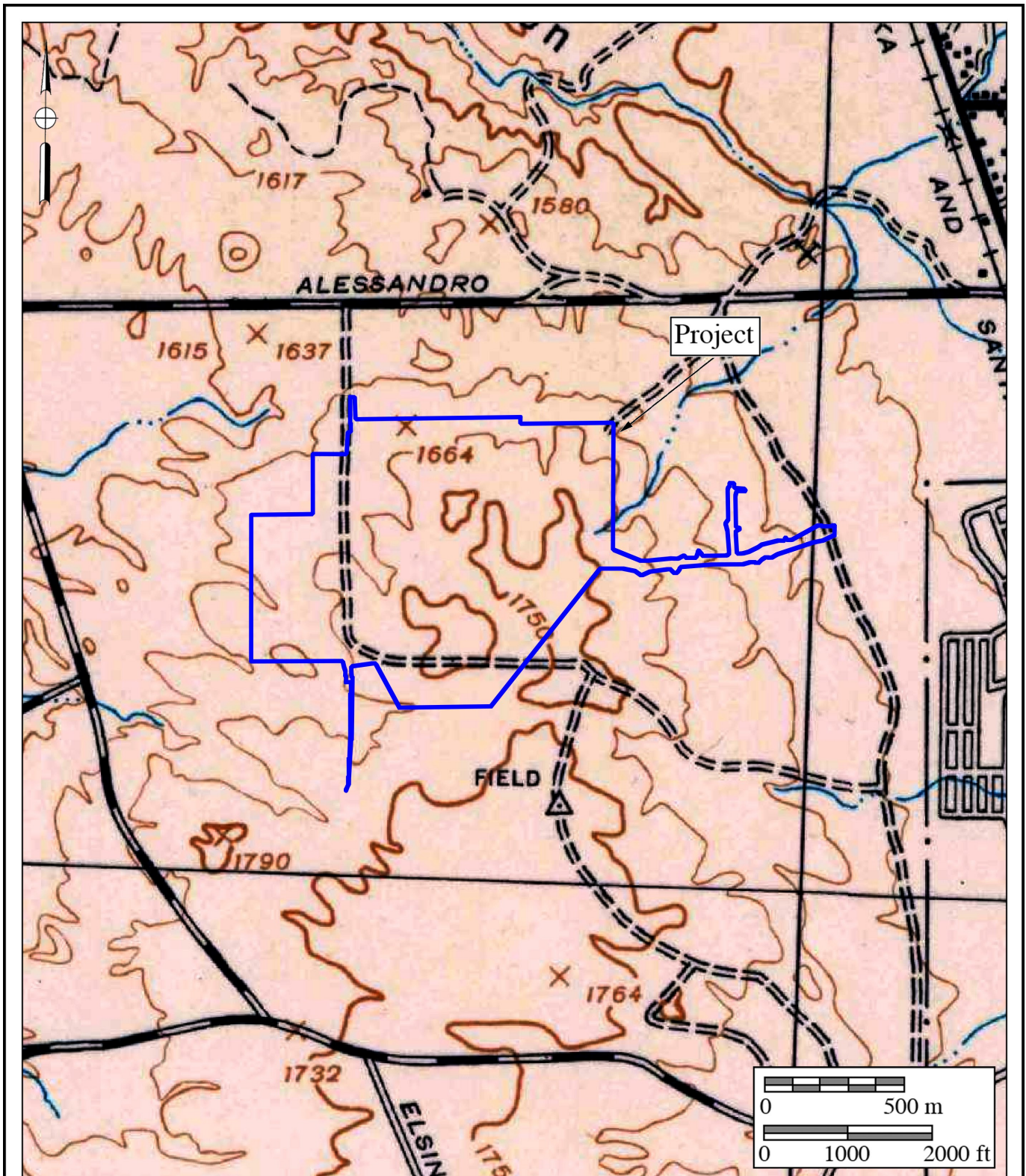
Affiliation and Address:  
BFSA Environmental Services, a Perennial Company  
14010 Poway Road, Suite A  
Poway, California 92064



**APPENDIX B**

**Maps**



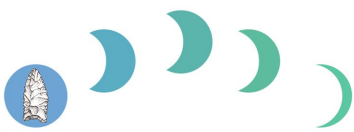


**Figure 2**

**1943 USGS Map**

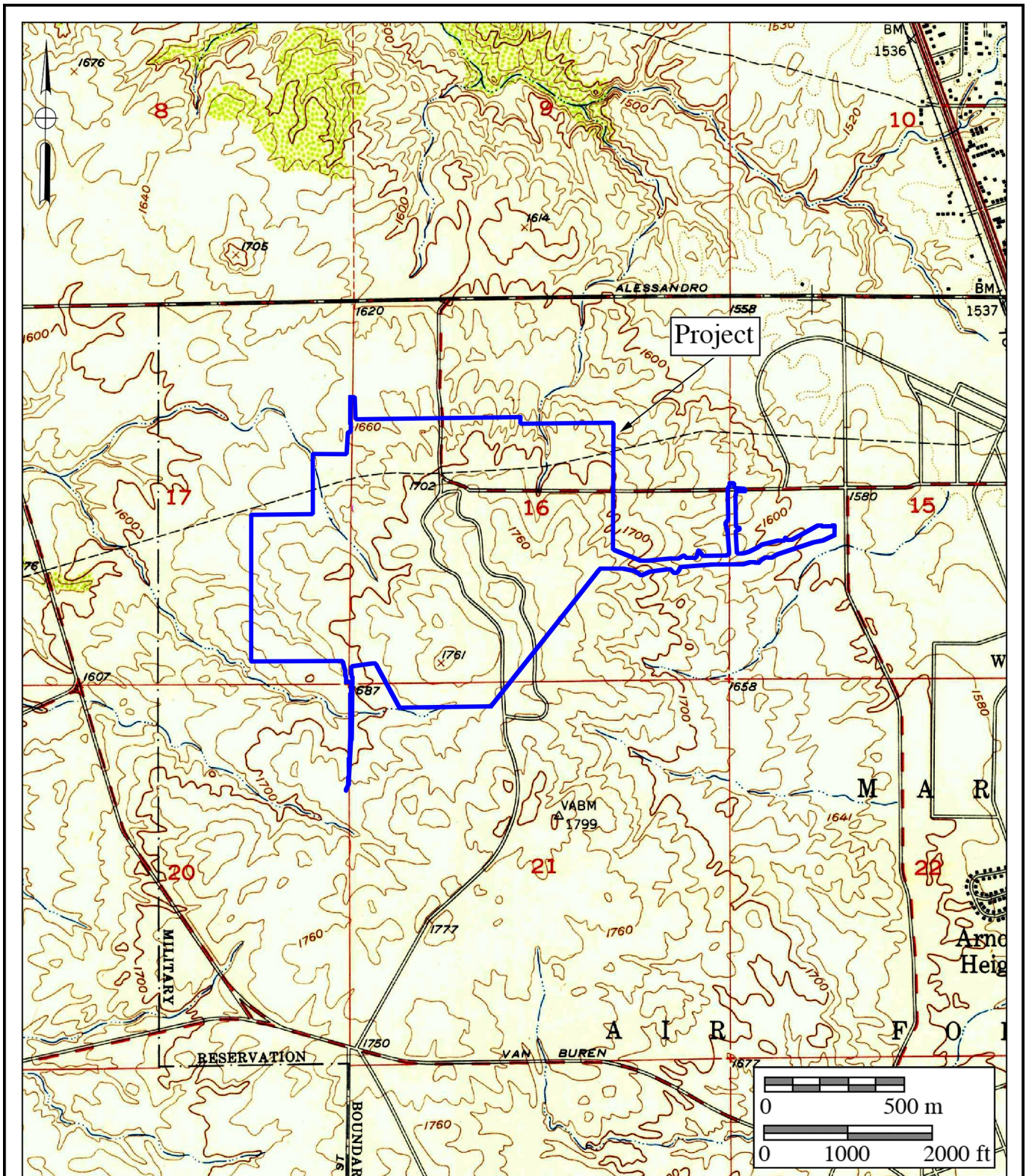
The West Campus Upper Plateau Project

USGS *Riverside* Quadrangle (15-minute series)



**BFS Environmental Services**  
A Perennial Company



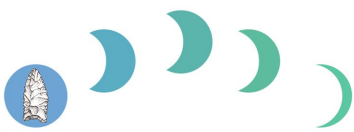


**Figure 3**

**1953 USGS Map**

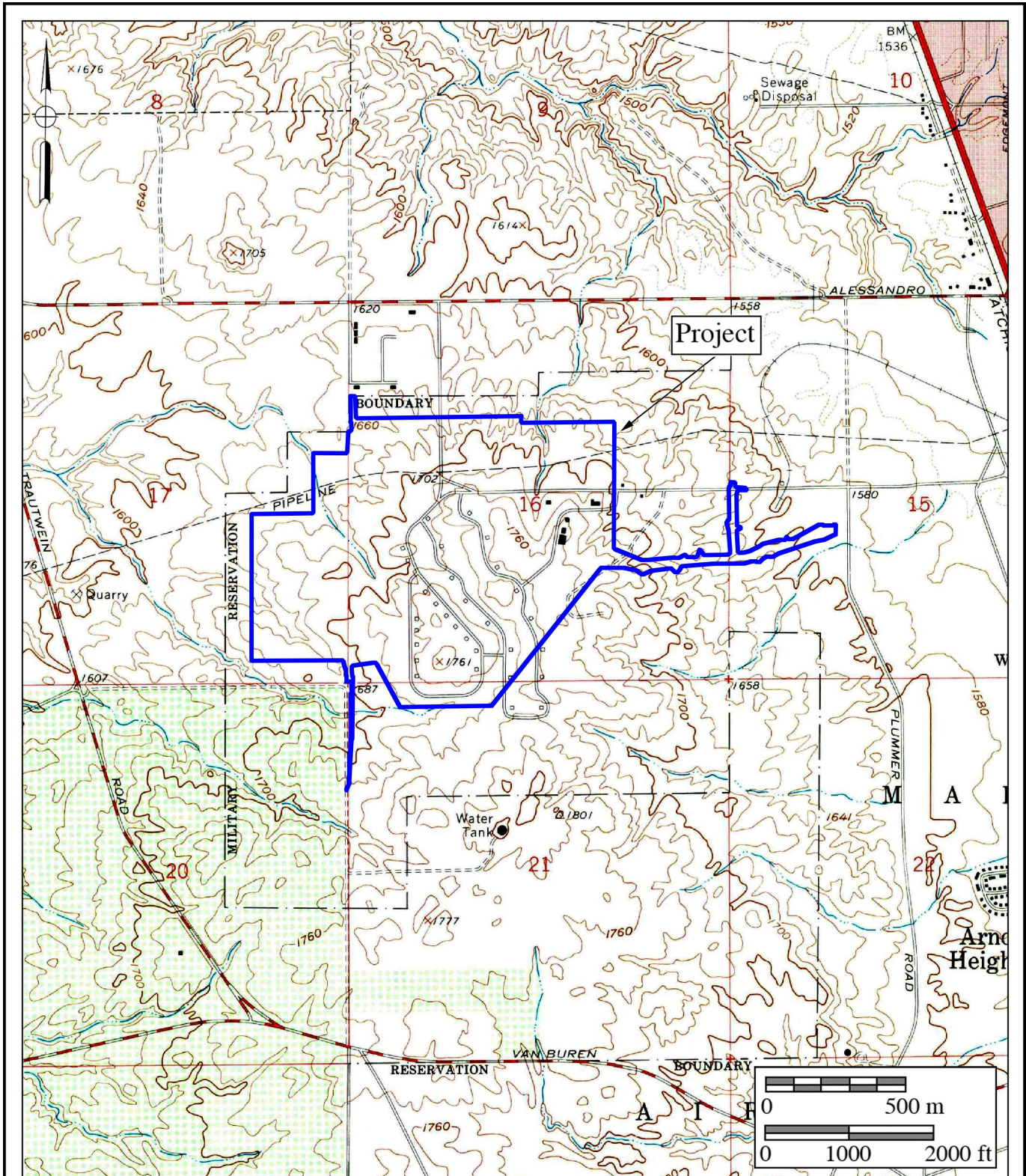
The West Campus Upper Plateau Project

USGS Riverside East Quadrangle (15-minute series)



**BFS Environmental Services**  
A Perennial Company





**Figure 4**

**1967 USGS Map**

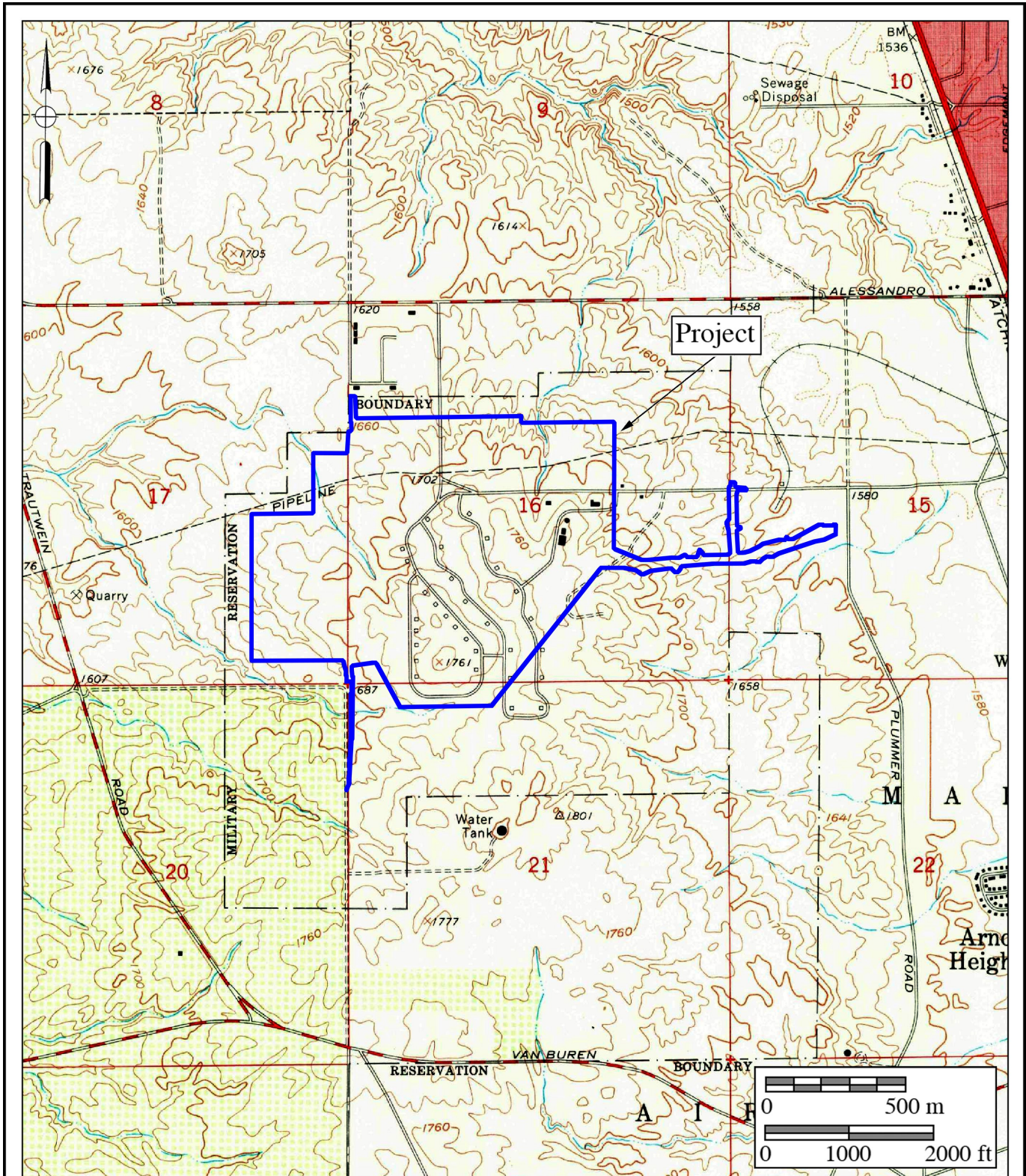
The West Campus Upper Plateau Project

USGS Riverside East Quadrangle (15-minute series)



**BFS Environmental Services**  
A Perennial Company





**Figure 5**

**1974 Edition of the 1967 USGS Map**

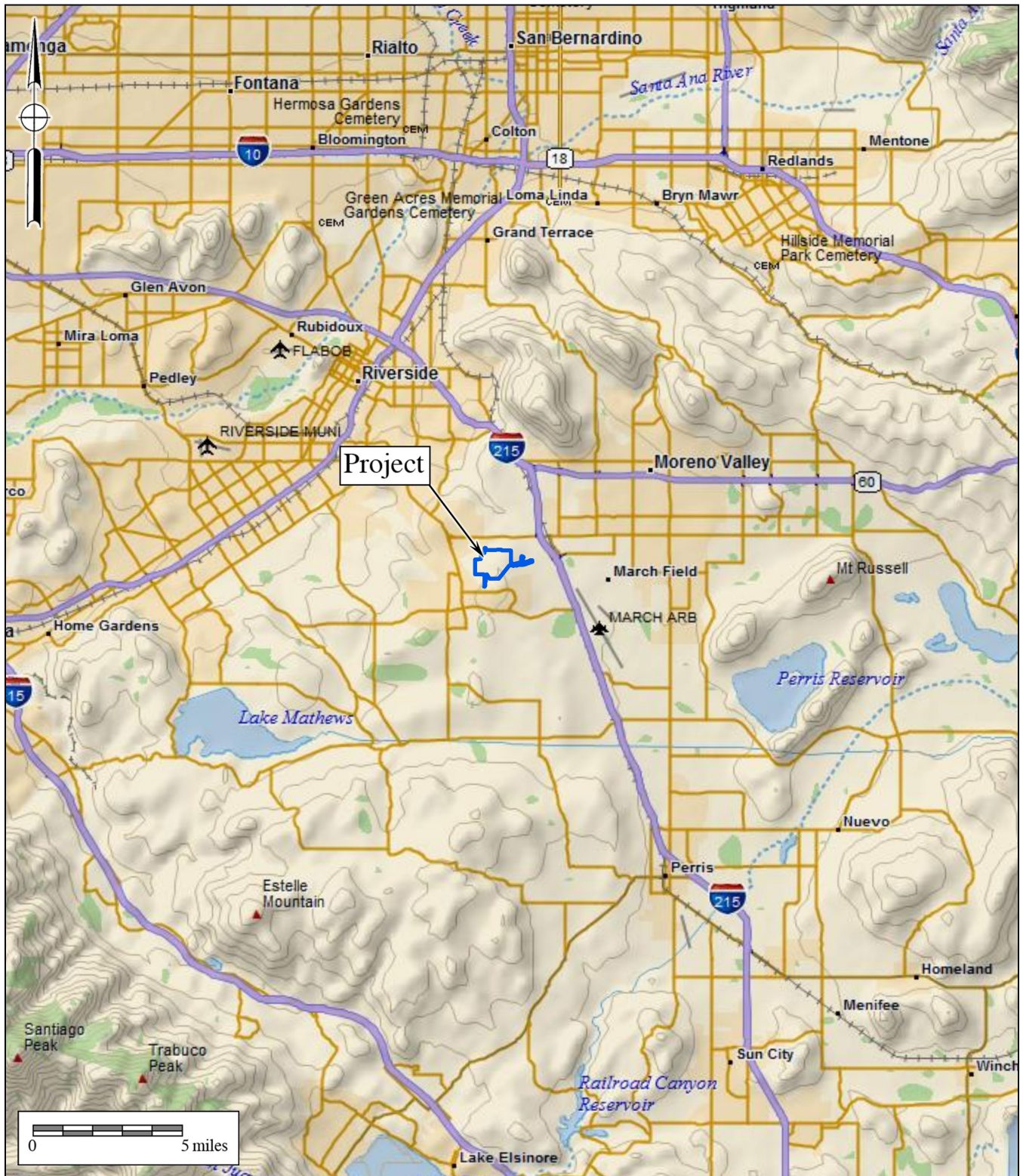
The West Campus Upper Plateau Project

USGS Riverside East Quadrangle (15-minute series)



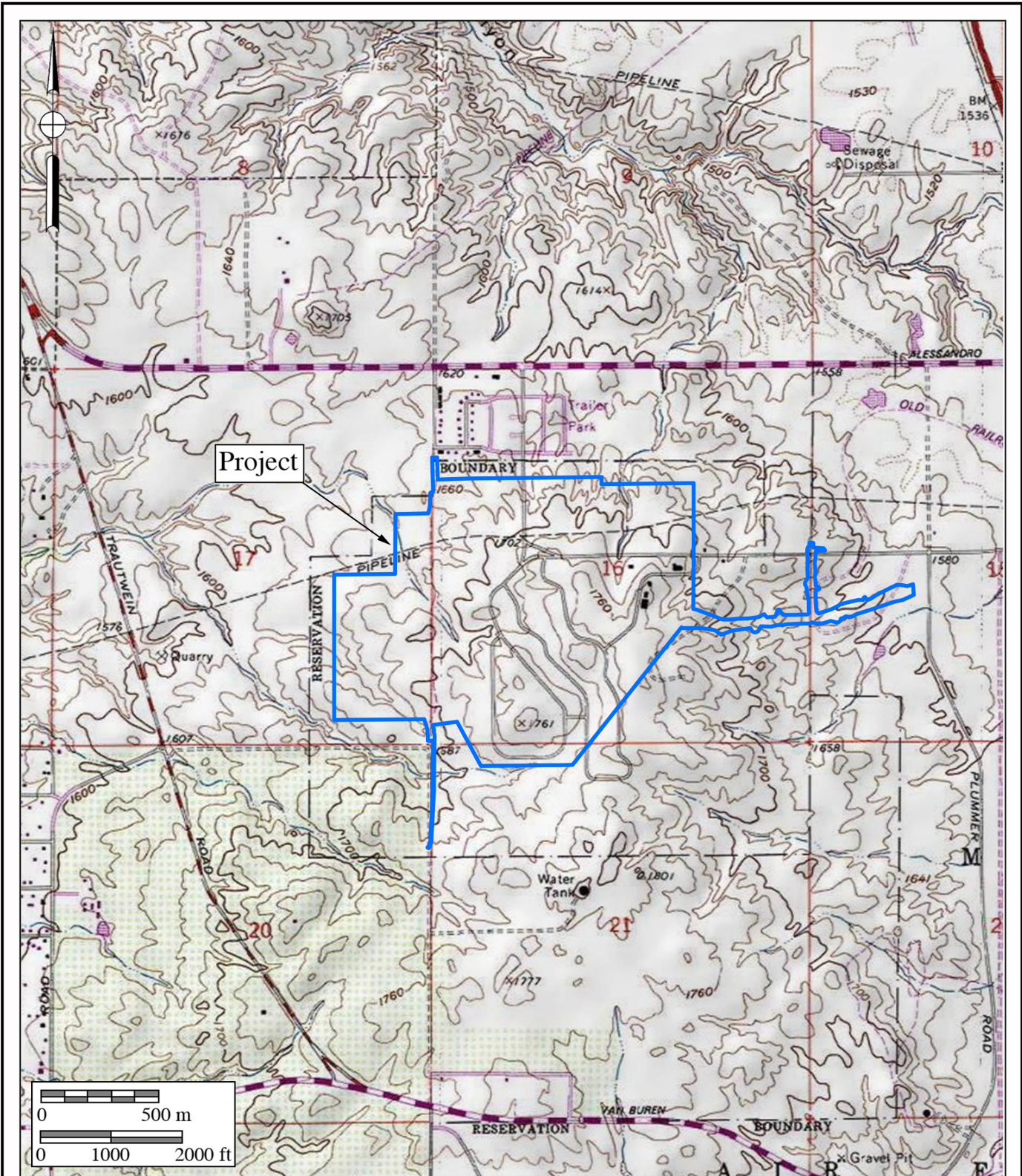
**BFS Environmental Services**  
A Perennial Company





**Figure 1**  
**General Location Map**  
The West Campus Upper Plateau Project  
DeLorme (1:250,000)

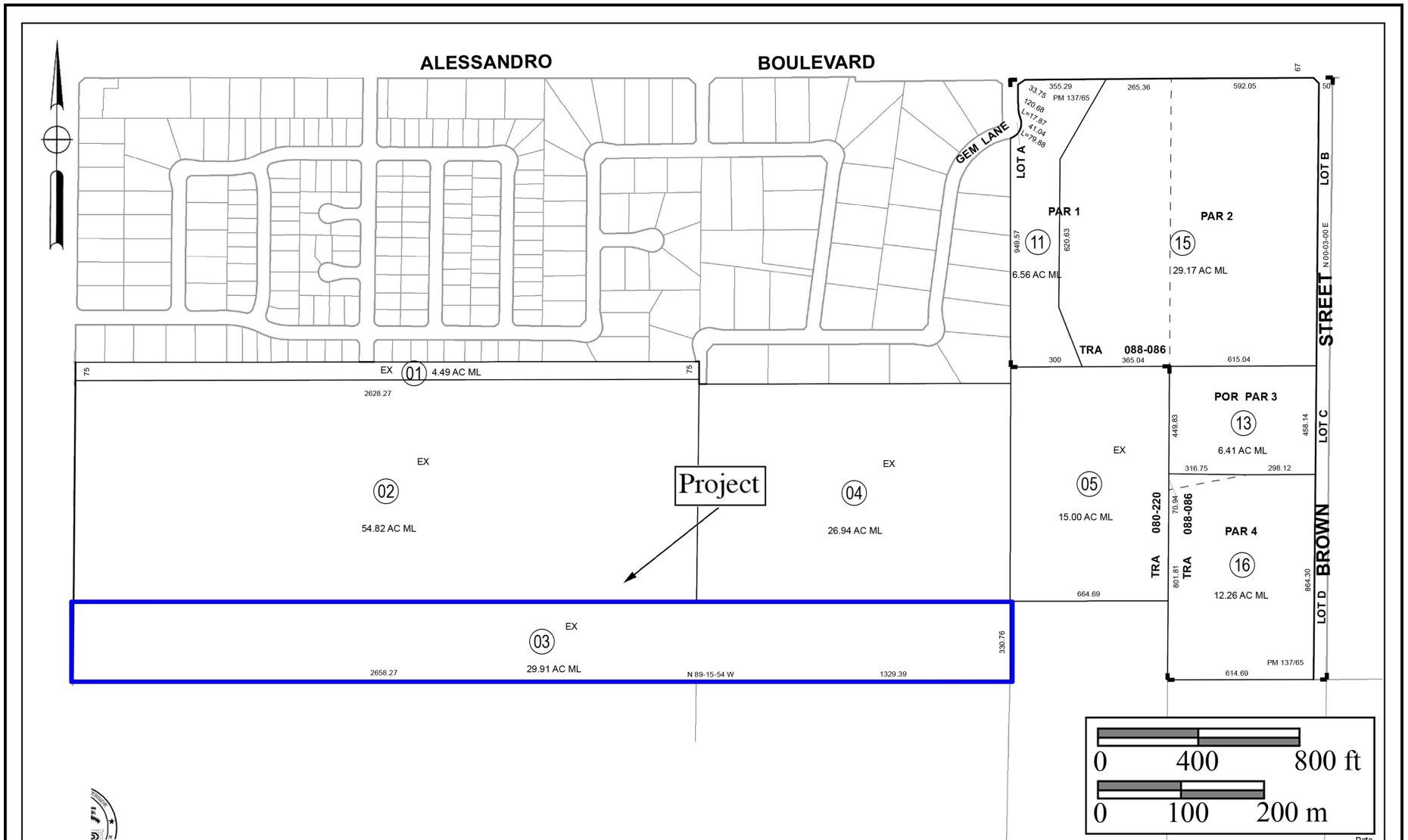




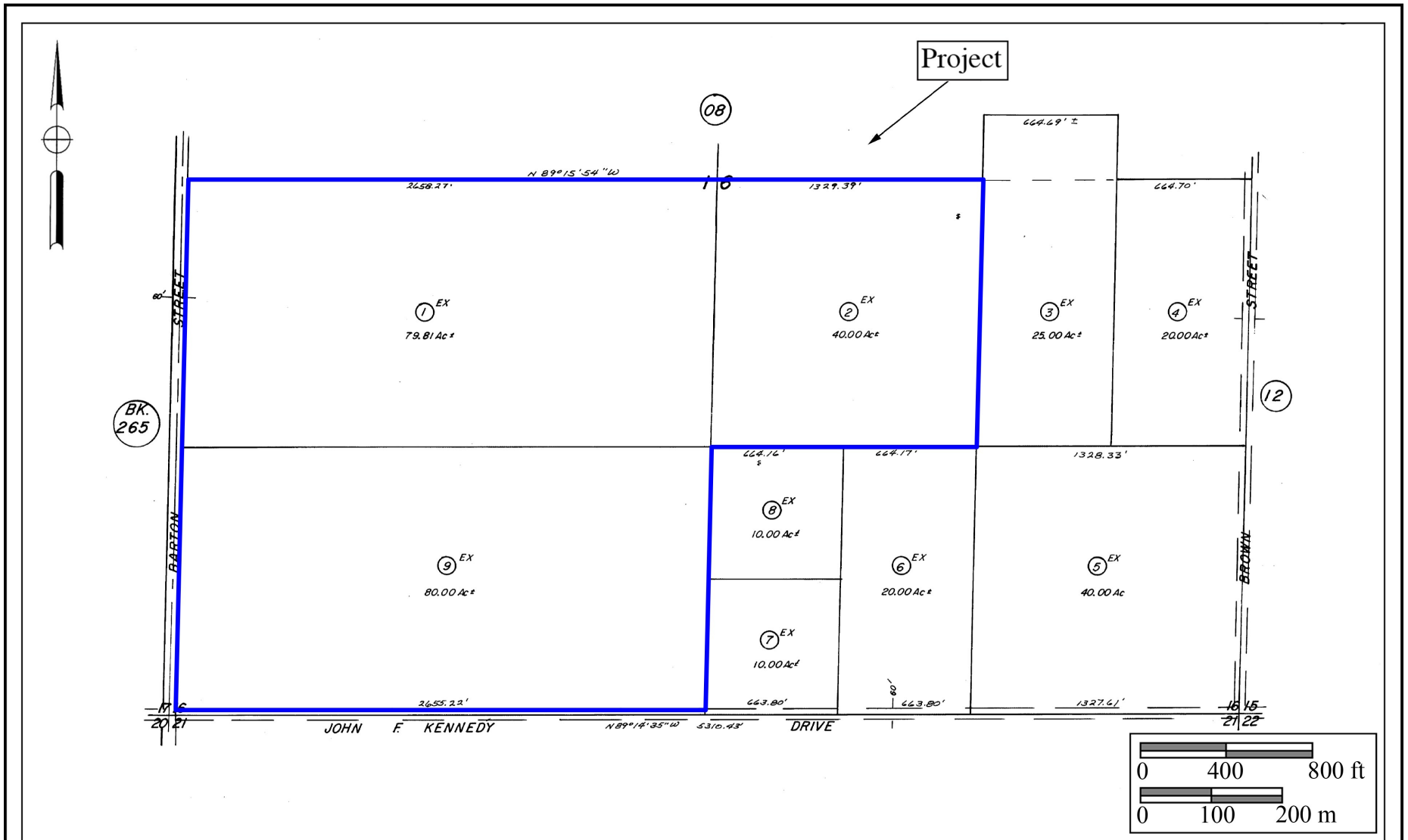
**Figure 6**  
**Current USGS Map**

The West Campus Upper Plateau Project  
 USGS *Riverside East* Quadrangle (7.5-minute series)





**Figure 8**  
**Current Assessor's Parcel Map**  
The West Campus Upper Plateau Project



**Figure 7**  
**Current Assessor's Parcel Map**  
The West Campus Upper Plateau Project

**APPENDIX C**

**Preparer's Qualifications**



# Brian F. Smith, MA

## President, Principal Investigator

BFSA Environmental Services, A Perennial Company

14010 Poway Road • Suite A •

Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: [bfsmith@bfsa.perennialenv.com](mailto:bfsmith@bfsa.perennialenv.com)



## Education

---

**Master of Arts, History, University of San Diego, California** 1982

**Bachelor of Arts, History, and Anthropology, University of San Diego, California** 1975

## Professional Memberships

---

Society for California Archaeology

## Experience

---

**President/Principal Investigator** 1977–Present  
**BFSA Environmental Services, a Perennial Company** Poway, California

Brian F. Smith is the president and principal historical and archaeological consultant for BFSA Environmental Services. Over the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Mr. Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Corps of Engineers, the Bureau of Land Management, the Bureau of Reclamation, the Department of Defense, and the Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

## Professional Accomplishments

---

These selected major professional accomplishments represent research efforts that have added significantly to the body of knowledge concerning the prehistoric life ways of cultures once present in the southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large numbers of downtown San Diego mitigation and monitoring projects, some of which included Broadway Block (2019), 915 Grape Street (2019), 1919 Pacific Highway (2018), Moxy Hotel (2018), Makers Quarter Block D (2017), Ballpark Village (2017), 460 16<sup>th</sup> Street (2017), Kettner and Ash (2017), Bayside Fire Station (2017), Pinnacle on the Park (2017), IDEA1 (2016), Blue Sky San Diego (2016), Pacific Gate (2016), Pendry Hotel (2015), Cisterra Sempra Office Tower (2014), 15<sup>th</sup> and Island (2014), Park and G (2014), Comm 22 (2014), 7<sup>th</sup> and F Street Parking (2013), Ariel Suites (2013), 13<sup>th</sup> and Marker (2012), Strata (2008), Hotel Indigo (2008), Lofts at 707 10<sup>th</sup> Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7<sup>th</sup> Avenue (2005), Aloft on Cortez Hill (2005), Front and Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkliff Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

1900 and 1912 Spindrift Drive: An extensive data recovery and mitigation monitoring program at the Spindrift Site, an important prehistoric archaeological habitation site stretching across the La Jolla area. The project resulted in the discovery of over 20,000 artifacts and nearly 100,000 grams of bulk faunal remains and marine shell, indicating a substantial occupation area (2013-2014).

San Diego Airport Development Project: An extensive historic assessment of multiple buildings at the San Diego International Airport and included the preparation of Historic American Buildings Survey documentation to preserve significant elements of the airport prior to demolition (2017-2018).

Citracado Parkway Extension: A still-ongoing project in the city of Escondido to mitigate impacts to an important archaeological occupation site. Various archaeological studies have been conducted by BFSA resulting in the identification of a significant cultural deposit within the project area.

Westin Hotel and Timeshare (Grand Pacific Resorts): Data recovery and mitigation monitoring program in the city of Carlsbad consisted of the excavation of 176 one-square-meter archaeological data recovery units which produced thousands of prehistoric artifacts and ecofacts, and resulted in the preservation of a significant prehistoric habitation site. The artifacts recovered from the site presented important new data about the prehistory of the region and Native American occupation in the area (2017).

The Everly Subdivision Project: Data recovery and mitigation monitoring program in the city of El Cajon resulted in the identification of a significant prehistoric occupation site from both the Late Prehistoric and Archaic Periods, as well as producing historic artifacts that correspond to the use of the property since 1886. The project produced an unprecedented quantity of artifacts in comparison to the area encompassed by the site, but lacked characteristics that typically reflect intense occupation, indicating that the site was used intensively for food processing (2014-2015).

Ballpark Village: A mitigation and monitoring program within three city blocks in the East Village area of San Diego resulting in the discovery of a significant historic deposit. Nearly 5,000 historic artifacts and over 500,000 grams of bulk historic building fragments, food waste, and other materials representing an occupation period between 1880 and 1917 were recovered (2015-2017).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven-block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark Project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade (2000-2007).

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, containing primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the city of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed

in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the city of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs documenting this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the city and county of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the city. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the city showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Mid-Bayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the city. The study included the analysis of some potentially historic features and numerous prehistoric

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Audie Murphy Ranch, Riverside County, California: Project manager/director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—including project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February- September 2002.

Cultural Resources Evaluation of Sites Within the Proposed Development of the Otay Ranch Village 13 Project, San Diego County, California: Project manager/director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—including project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural Resources Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project manager/director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Meniffee West GPA, Riverside County, California: Project manager/director of the investigation of nine sites, both prehistoric and historic—including project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Cultural Resources Survey and Test of Sites Within the Proposed French Valley Specific Plan/EIR, Riverside County, California: Project manager/director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee Ranch, Riverside County, California: Project manager/director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage Mitigation of a Portion of the San Diego Presidio Identified During Water Pipe Construction for the City of San Diego, California: Project archaeologist/director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project, Pacific Beach, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage Mitigation of a Portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and Testing of Two Prehistoric Cultural Resources for the Airway Truck Parking Project, Otay Mesa, California: Project archaeologist/director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural Resources Phase I and II Investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Westview High School Project for the City of San Diego, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of



artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project archaeologist/director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of Grading for the Herschel Place Project, La Jolla, California: Project archaeologist/ monitor— included monitoring of grading activities associated with the development of a single- dwelling parcel. September 1999.

Survey and Testing of a Historic Resource for the Osterkamp Development Project, Valley Center, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Testing of a Prehistoric Cultural Resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project manager/director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Evaluation of Cultural Resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project manager/director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural Resources Phase I, II, and III Investigations for the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997- January 2000.

Phase I, II, and III Investigations for the Scripps Poway Parkway East Project, Poway California: Project archaeologist/project director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis; coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.