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ARCHAEOLOGY OF THE SA-5 TARGET PROJECT AREA

NELLIS AIR FORCE RANGE
NYE COUNTY, NEVADA

By

Kathleen Ann Bergin
Principal Investigator

92-14359



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ENVIRONMENTAL SOLUTIONS, INC.

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NYE COUNTY, NEVADA

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April 1992

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ABSTRACT

Environmental Solutions, Inc. conducted archival research and an intensive pedestrian survey for historic properties within the SA-5 Target project area. Encompassing 2.59 km², the project area is situated in central Nye County along the eastern margin of Stonewall Flat, about 37 km east of the town of Goldfield, Nevada. As a result of the research, 11 historic properties were recorded. Ten of these are isolated finds of historic or prehistoric materials such as broken bottles or flake tools, and these are not considered eligible for National Register listing. The eleventh site is an historic road that is considered eligible for listing, but requires further archival and field research to fulfill documentary requirements for resource evaluation. Avoidance of this site, 26NY7813, is recommended. This action should prove viable since the property is located in the southeastern extreme of the SA-5 Target project area. If avoidance cannot be achieved, documentary research and a field reconnaissance and mapping program are recommended.

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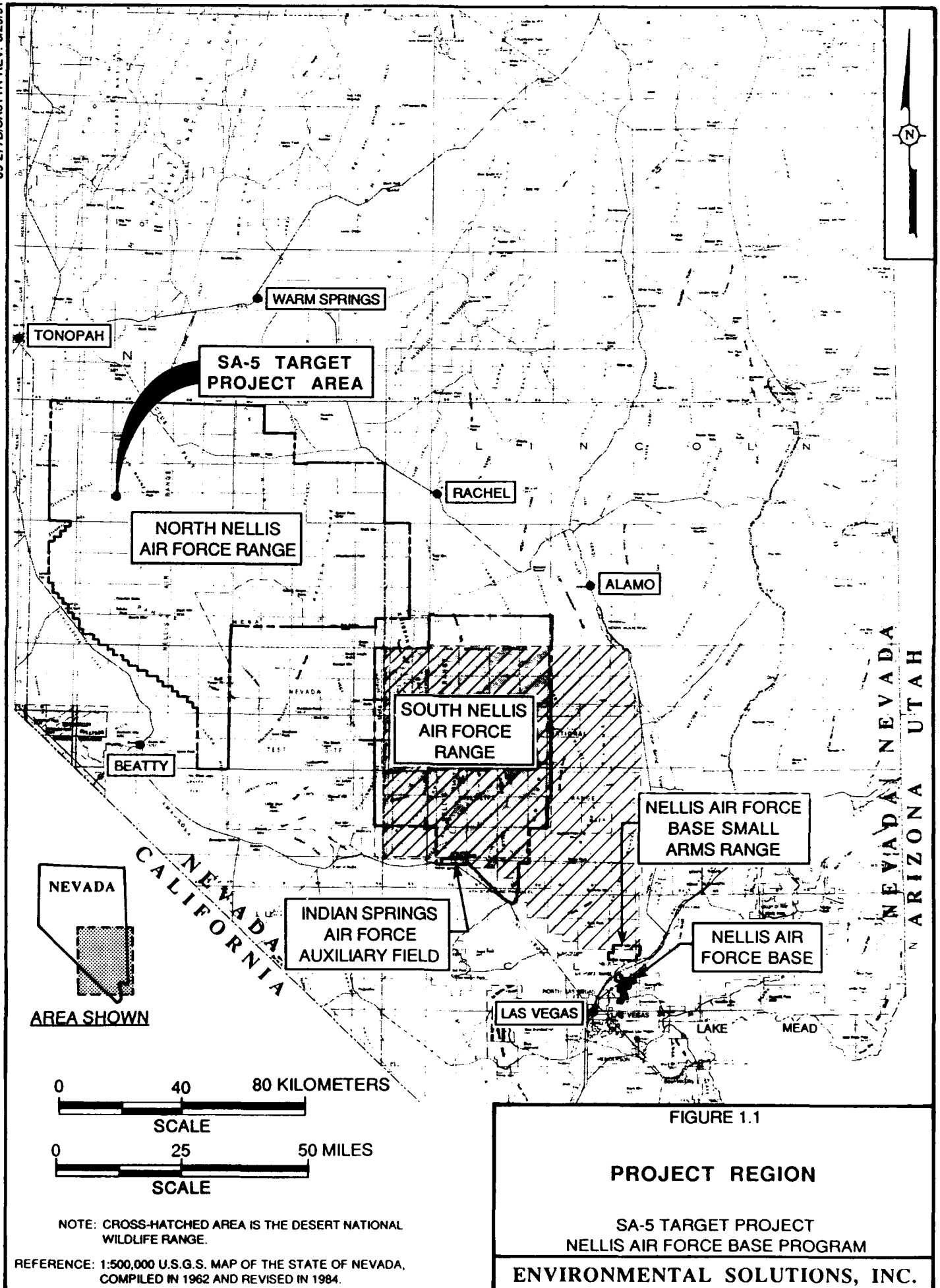
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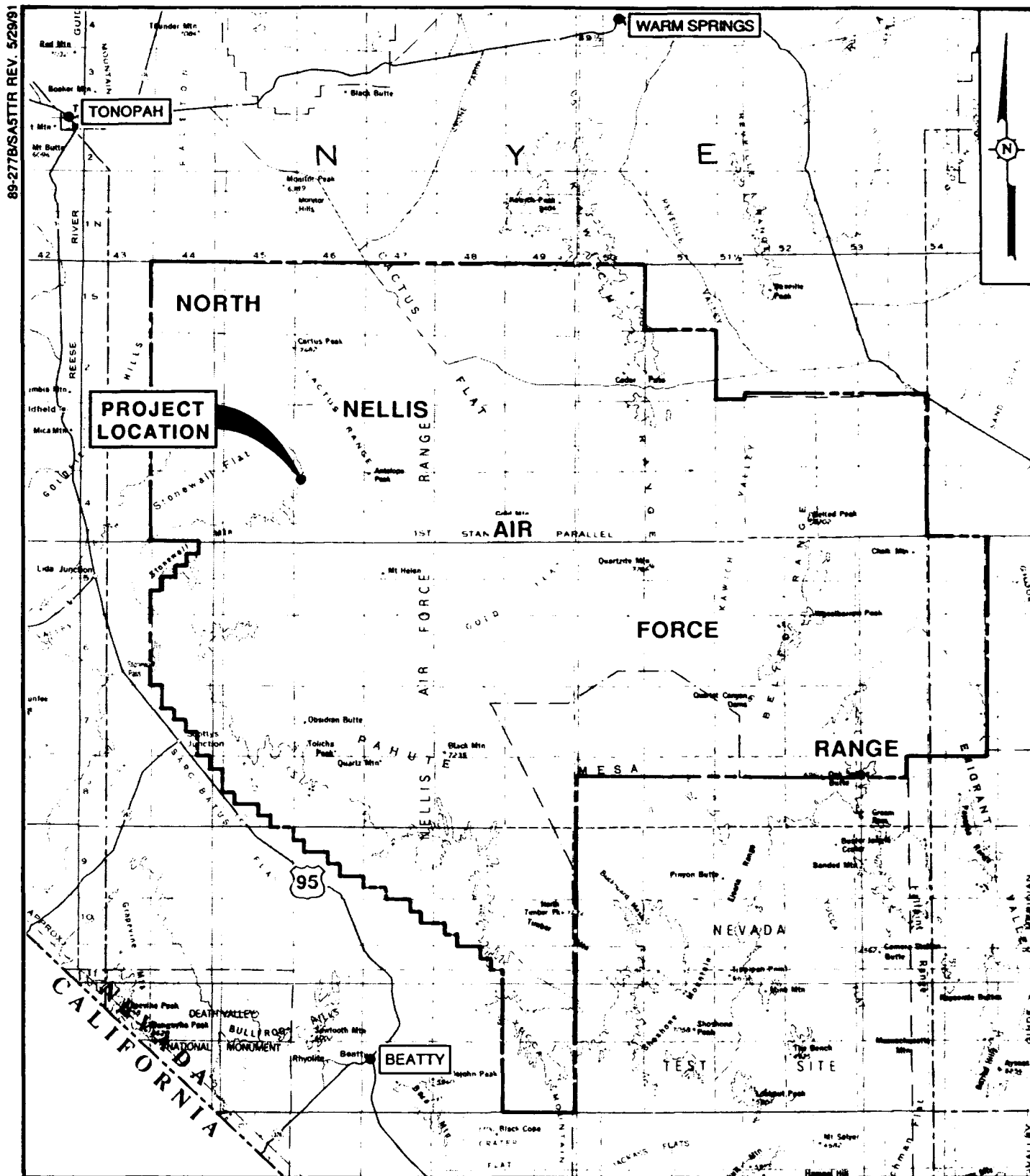
1.0 INTRODUCTION

Environmental Solutions, Inc. conducted an intensive pedestrian survey for archaeological, historical, and other types of cultural properties within an area proposed for target development by the U.S. Air Force (USAF) at Nellis Air Force Base, Nevada. The survey area lies within the Nellis Air Force Base military reservation which covers over 12,150 km² (three million acres) in Nye, Lincoln, and Clark counties, Nevada (Figure 1.1). The SA-5 Target project is situated on the Nellis North Range approximately 60 km southeast of the city of Tonopah (Figure 1.2). The project location is at the eastern margin of Stonewall Flat where it meets the lower slope of the western alluvial fan of the Cactus Range (Figure 1.3). This location is within portions of Sections 6 and 7 (projected) in Township 4 South, Range 46 East, Mount Diablo Base and Meridian.

The SA-5 Target project required the survey of an approximate 1.6X1.6 km area, incorporating 2.59 km² (640 acres). On February 9-10 and 16-17, 1991, the survey was completed by a team of five archaeologists walking parallel linear transects at 20-30 m intervals. Kathleen Bergin served as principal investigator and project archaeologist; Ann DuBarton, field/laboratory director, and Richard Stockton provided survey support together with Susan Edwards, who also served as mapper, and Monique Kimball, who was the project's historical archaeologist. Mr. Jerry Dunning accompanied the archaeological research team in his role as U.S. Air Force Security Escort.

The SA-5 Target project was sponsored by the USAF, Nellis Air Force Base (NAFB), Nevada. It was administered by the National Park Service (NPS), Western Region, as Delivery Order No. CX8002-0-0011 under the basic contract for archaeological services at Nellis Air Force Base, Contract No. CX8000-0-0011. Ms. Mellownee Bassett served as Contracting Officer. Technical Direction was provided by the Contracting Officer's Representative (COR), Mr. Mark Rudo, with the Interagency Archeological Services Branch of the National Park Service.



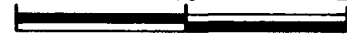


0 20 40 KILOMETERS



SCALE

0 10 20 MILES



SCALE

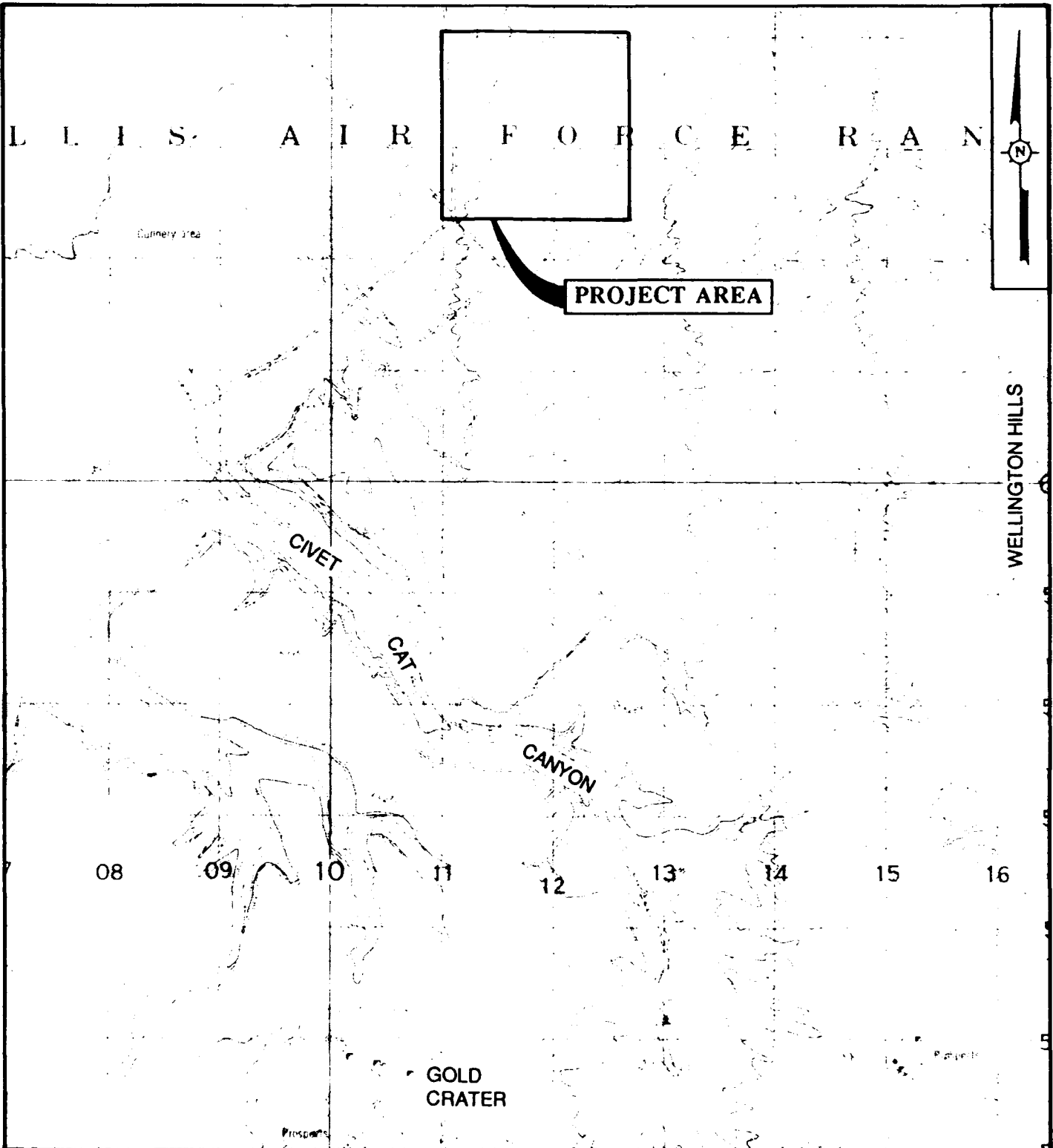
REFERENCE: 1:500,000 U.S.G.S. MAP OF THE STATE OF NEVADA,
COMPILED IN 1962 AND REVISED IN 1984.

FIGURE 1.2

PROJECT VICINITY

SA-5 TARGET PROJECT
NELLIS AIR FORCE BASE PROGRAM

ENVIRONMENTAL SOLUTIONS, INC.



0 1 2 KILOMETERS
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0 1 2 MILES
SCALE

FIGURE 1.3

PROJECT LOCATION

SA-5 TARGET PROJECT
NELLIS AIR FORCE BASE PROGRAM

ENVIRONMENTAL SOLUTIONS, INC.

REFERENCE: DMATC MAP OF CACTUS SPRING, NYE COUNTY,
NEVADA. COMPILED IN 1976.

2.0 ENVIRONMENTAL SETTING

The SA-5 Target project area lies within the Basin-and-Range physiographic province, which is a generally elevated region whose streams find no egress to the sea. Typical basin-and-range features in the project area include complex geology and recency of faulting, structural rather than erosional valleys, and a warm desert climate.

2.1 GEOLOGY AND GEOMORPHOLOGY

The SA-5 Target project area is situated at the eastern periphery of Stonewall Flat, where this landform interfaces with the western alluvial fan of the southern Cactus Range. Elevations in the project area range from 1,512 to 1,560 m (4,960 to 5,120 feet) above mean sea level, and the slope aspect is westward. The project area lies just north of the dissected western extension of Pahute Mesa, which includes Stonewall Mountain, the elevated canyons south of the project area (Civet Cat Canyon, Pack Rat Canyon, and an unnamed canyon), and, much further to the south and southeast, Obsidian Butte, Tolicha Peak, Black Mountain, and Quartz Mountain (Cornwall 1972). East of the project area lies the Cactus Range, which is a northwest-trending horst that reaches an elevation of 2,280 m (7,482 feet) at Cactus Peak (northern section) and 1,709 m (7,574 feet) at Antelope Peak (southern section). The southern section, which ranges from 1,645 to 1,709 m (5,400 to 7,574 feet), is opposite the project locale.

The lithology of the project area includes a mix of volcanic and metamorphic rocks that originate in the Cactus Range. Angular, pea gravel- to cobble-sized volcanic clasts predominate. Rhyolite, tuff, basalt, dacite, and andesite are abundant. Metamorphic rocks such as quartzite and marble are present but comparatively rare. Cobbles are more common in the intermittent washes and on the upper slopes of the eastern one-half of the project area. Limited sections of desert pavement occur in this eastern area, and a few scattered boulders were noted in the southeastern one-quarter of the project area.

Soils range from sandy silts on the lower slopes to silty sands on the upper slopes. Pavement surfaces tend to have a higher silt component in the underlying soils than do unconsolidated surface deposits. The rocky surface deposits of the project area and vicinity have been impacted by horse populations, which have also overgrazed the vegetative cover of the area. These factors have facilitated degradation of the locale through sheetwash erosion.

2.2 FLORA

The SA-5 Target project area exhibits vegetation transitional between salt desert shrub and northern desert shrub communities. The prevalent species of the project area are mormon tea (*Ephedra viridis*) and a variety of saltbushes (*Atriplex* spp.), most commonly four-wing saltbush (*A. canescens*) and shadscale (*A. confertifolia*). Sagebrush (*Artemisia* spp.) and mormon tea become more common in the upslope, eastern portion of the project area where a few scattered Joshua trees (*Yucca brevifolia*) also occur. Additional species noted include buckwheat (*Eriogonum* spp.), winterfat (*Ceratoides lanata*), cholla and prickly pear cacti (*Opuntia* spp.), creosotebush (*Hymenoclea salsola*), pale wolfberry (*Lycium pallidum oligospermum*), galleta grass (*Hilaria rigida*), and unidentified fluff and bunch grasses.

Overgrazing of the native vegetation is apparent. Many plants have been grazed down to the ground surface, making species identification difficult. These may be winterfat and various grasses, which were much more common in the vicinity area during previous survey efforts (Bergin 1979; Crownover 1981). Overgrazing of the area by horse and perhaps burro populations not only contributes to degradation of the area through sheetwash erosion, but probably also inhibits re-seeding of important browse plants, since they are eaten prior to setting seeds. The density of important browse plants declines under such conditions.

2.3 FAUNA

Few faunal species were observed during the fieldwork for the SA-5 Target project. Horses (*Equus equus*) are quite common in the project area, and burros (*Equus asinus*) were observed beyond the survey area boundary. As stated previously, the local ecology is being degraded by the high population of horses in the project vicinity. A few black-tailed jackrabbits (*Lepus californicus*), horned larks (*Eremophila alpestris*), a variety of lizards, and insects were also observed. In addition, burrow holes were noted.

2.4 HYDROLOGY

No sources of permanent water are available in the project area or its immediate vicinity. However, several springs lie within 7-13 km of the project area, however. Closest to the SA-5 Target project area is Civet Cat Spring (EOD Hideout), which is situated approximately 7 km to the south. Approximately 8 km north of the project area lies an unnamed spring north of Sleeping Column Canyon on the western side of the Cactus Range. East of this locale, Cactus Spring (two springs) is located on the eastern slope of the Cactus Range. Antelope Springs (two springs),

about 13 km east of the project area, also lies on the eastern slope of the range. Stonewall Spring is situated about 12 km southwest of the project area on the northern face of Stonewall Mountain.

Intermittent streams dissect the project area and its vicinity. These streambeds direct surface runoff in a westerly direction onto Stonewall Flat, which contains a series of small playas approximately 12 km west of the project area. Surface runoff reaching these playas would pool and eventually evaporate.

3.0 RESEARCH DESIGN

Archaeological research for the SA-5 Target project was undertaken to address both management and research objectives. The specific need to conduct archaeological research in the project area originated with the USAF decision to develop a target in the Stonewall Flat area of the North Nellis Range. Consistent with federal regulations for the protection of historic properties (36 CFR Part 800), a site identification effort was undertaken by Environmental Solutions, Inc. to identify those significant properties that may be affected by the proposed project. The Secretary of the Interior's Standards and Guidelines (NPS 1983) were adhered to for the research, which included both archival and field efforts. The following sections of this chapter review the management and research objectives and the methods employed to meet these objectives.

3.1 MANAGEMENT OBJECTIVES

Archival and field research of the project area were designed to achieve the following management goals:

- Identification of all historic properties that may be affected by the target development project. The identification and evaluation of historic properties is the first step in the Section 106 process, as required by the National Historic Preservation Act of 1966, as amended, and implemented by the 36 CFR Part 800 procedures. No constraints on surface visibility occurred in the project area that would negatively affect complete resource identification. Vegetation was low-growing and relatively sparse. Inclement weather, however, did reduce the amount of time available for fieldwork.
- Ascertainment of the presence of significant or potentially significant properties in the project area. The Criteria for Evaluation (36 CFR Part 60.4) for eligibility to the National Register of Historic Places (NRHP) is the standard used for determination of resource significance. The project can have an effect on only those properties listed or determined eligible for listing in the NRHP, and it is a regulatory requirement to evaluate potentially affected properties during the first step of the Section 106 process. This objective, therefore, would provide a list of eligible and potentially eligible properties that would need additional research to document the site and assign it to an appropriate historic context.
- Assessment of the potential for effects to occur to the identified properties as a result of the target development project. This information would be available for use in project planning so that either redesign or other mitigation measures could be developed to avoid or lessen impacts to significant properties, or other action could be undertaken to determine if sites would be affected.
- Synthesis of the database relative to cultural resource management requirements and development of recommendations for future efforts needed to complete the Section 106 process.

3.2 RESEARCH OBJECTIVES

The research objectives for the survey and inventory effort are as follows:

- Synthesis of existing information and field data to develop a uniform archaeological database for the project area.
- Characterization of the internal organization of any identified site to the degree possible using archival and field survey data. This objective fulfills data requirements that are applicable both to the documentation of sites for the evaluation of their eligibility for NRHP listing and to the placement of sites within specific historic contexts that bring to the forefront the potential of a property or district of properties to make a vital contribution to the resolution of significant research questions. Basic questions addressed for this research include the following:
 - What is the horizontal and vertical distribution of the site (site area, dimensions, and depth)?
 - What data classes (information sets) are represented at the site? What is the density of data within these information sets? How are these information sets distributed within the site?
 - Does the site contain horizontal or vertical stratigraphy indicative of discrete site components?
 - What evidence is present for the chronological ordering of the sites or site components?
 - What impacts exist to each site's contextual integrity? What effect, if any, do these physical impacts have on the research applicability of the site?
 - What is the environmental setting of the site?
- Characterization of the type, distribution, and density of historic properties in the project area, with attention to the following questions:
 - Do site clusters exist in the project area? If so, what explanation for such clustering can be proposed?
 - What site types are represented in the project area?
 - Do the different site types demonstrate differential distributions on the landscape? If so, do correlations in landform or in environmental zone exist between site type and distribution?
 - Do site types or the frequency of sites and site types change through time?

3.3 RESEARCH METHODS

The purpose of the research was the identification of historic properties that may be affected by the proposed project. Two methods were employed to accomplish the identification task. These were an archival records check and an intensive pedestrian survey. The methods used for identification are described below, and the research results are described in Chapter 4.0. The methods employed for site recordation and location mapping are also reviewed in this chapter.

3.3.1 ARCHIVAL SEARCH AND DATA REVIEW METHOD

An archival records search was conducted at the Archaeological Information Center located at the University of Nevada, Las Vegas. This information center is the official repository and clearinghouse for all archaeological information in Nye, Lincoln, Clark, and Esmeralda counties. In addition, the Bureau of Land Management, Las Vegas, was contacted for additional archived data and Federal Register volumes were reviewed for National Register properties listed, determined eligible for listing, or pending nomination/eligibility.

The archival searches yielded information on:

- Previously-surveyed tracts within or near the area of potential effect (APE).
- Intensity of previous survey efforts.
- Previously-recorded properties within or near the APE.
- Characteristics of previously recorded properties.
- Dates of previous surveys, technical reports, and report authors.

The archival records searches resulted in the identification of previously recorded properties near the APE. Property types range from mining towns or camps, prospects, settlements, and historic wells to isolated prehistoric materials, lithic scatters, and camps, rockshelters, and rock art near water sources.

The archival records searches also yielded information on the intensity of previous survey coverage in or near the APE. Field survey efforts have been undertaken in the general project area for about 16 years, but much of the early work does not meet the current BLM standards for intensive Class III survey. Work conducted in the 1970s and early 1980s (Bergin 1979; Crownover 1981) was accomplished with a 50 m transect interval, while current standards call for a maximum 30 m transect interval.

3.3.2 PEDESTRIAN SURVEY METHOD

The intent of an intensive survey effort is to provide 100 percent visual coverage of the surface of the ground. This is normally accomplished by adhering to a grid pattern of survey consisting of parallel linear transects surveyed at a set interval. For the research of the SA-5 Target project, survey personnel walked parallel linear transects typically spaced at approximate 20 m intervals. The transect interval was widened to 30 m in the southeastern one-quarter of the project area due to inclement weather and the inability to extend the available range access. Perimeter transects were

flagged with surveyor's tape and interior transects were flagged with biodegradable toilet tissue to assure maintenance of the survey method. Survey extended beyond the project area boundary for approximately 100 m north of the northern boundary and 50 m south and west of the project boundary in the southwestern one-quarter. The survey personnel consisted of five archaeologists: the principal investigator, field/laboratory director, mapper, and two field archaeologists.

During the survey, any area of known or predictable archaeological sensitivity received more intensive inspection. Typically, these were limited to desert pavement surfaces and large boulders in the project area.

The survey team proceeded across the terrain on foot and searched for indications of past human habitation or use on the landscape or in soil profiles. For aboriginal properties, such evidence includes chipped stone debitage and tools, ground stone tools or tool fragments, burnt rock, bone and/or shellfish fragments, and soil discoloration or other features such as rock alignments, trails, soil mounds, or depressions. For historic Euroamerican properties, evidence of past habitation or use includes fragments or samples of glass, porcelain, metal, cut wood, domestic or other animal bone with saw cuts or other mechanical butchering marks, non-native vegetation, and features such as foundations, trash dumps, fence lines, and others.

3.3.3 PROPERTY DOCUMENTATION AND/OR RECORDATION METHOD

When evidence of cultural habitation or use was located during the field survey, the transect interval was contracted to provide more intensive coverage of the locale. The goals of the intensive effort were to accomplish the following to the degree possible given the restrictions of vegetation and topography on visual examination:

- Determine site boundaries.
- Determine the range of data classes present.
- Determine data frequency.
- Determine if loci or concentrations of cultural material occur onsite (internal site organization).
- Determine the potential for subsurface deposits.
- Record environmental setting including biotic community, landform, and geology.
- Record impacts to the property (site integrity).
- Sketch the site, its internal structure, and impacts.
- Record or verify the site's location on the appropriate U.S.G.S. topographic map and DMATC topographic map.

For any newly discovered properties, official IMACS inventory forms were completed (see Appendices A and B for site location maps and IMACS inventory forms). Records for the ten newly recorded sites were submitted to the Information Center in Las Vegas with a request for the assignment of official Smithsonian numbers. Information routinely recorded for chipped stone items includes:

- Material.
- Color.
- Presence or absence of cortex.
- Manufacture technique.
- Retouch or utilization flake scars.
- Tool type.

3.3.4 MAPPING METHOD

The project area boundary and cultural resource locations were mapped using an electronic distance measure (EDM) and prism. The southwest corner of the project area was used as the principal control point and is designated Mapping Station No. 1. A semipermanent datum was established at this corner with a wooden stake set in concrete. The stake was flagged with multicolored surveyors tape and surrounded by a rock cairn to make the location more visible.

The remaining three corners of the one square mile project area, as well as five additional mapping stations (Nos. 2-6), were established with rock cairns supporting a wooden stake with multicolored flagging. Climatic conditions--specifically, cloudiness (poor light), wind, rain, and hail--restricted use of the EDM to distances of less than 900 m. As a result, the mapping effort was at least twice as labor intensive as originally scoped.

For each mapping shot taken, the horizontal azimuth, vertical azimuth, and horizontal distance were recorded. Distances were recorded in feet from the mapping datum, and subsequently converted to meters for documentation purposes. The locations of the 11 cultural resources in the project area were recorded from Mapping Station Nos. 5 and 6, both of which are situated along the eastern boundary of the project area. Mapping station No. 6 is the southeastern corner of the project area and mapping station No. 5 is 805.7 m (one-half mile) to the north.

4.0 RESEARCH RESULTS

4.1 RESULTS OF THE ARCHIVAL RESEARCH

The archival search and literature review yielded information on previously inventoried areas in the project vicinity and the type, distribution, and significance of previously recorded sites in the project vicinity. The project area had not previously been surveyed for cultural materials, and no sites were known to occur within the SA-5 Target project boundary. Archaeological surveys had been completed in the general project vicinity, and historic properties recorded are listed in Table 4.1. Previous goal-specific research in the project region has been ongoing at minimal levels since the mid-1970s.

In 1975, a reconnaissance level survey of the North Nellis Air Force Range was undertaken by the Museum of Natural History, University of Nevada, Las Vegas, to evaluate the sensitivity of the region for archaeological, historical, and architectural properties (Ferraro et al. 1975). This effort was undertaken to provide baseline information relative to development of an environmental impact statement (EIS) for the Department of the Navy's proposed Project Seafarer, which required approximately 3,000 linear miles of ground disturbance. The reconnaissance concentrated on areas predictably sensitive for prehistoric and/or historical remains--springs, playa margins, Pleistocene lake shorelines, and mining towns or camps represented on U.S.G.S. maps. A number of sites in the general vicinity of the SA-5 Target project area were recorded at that time. To the south, near a spring at the southern tip of Civet Cat Canyon, multicomponent site 26NY369 was recorded. This property is a prehistoric habitation site with rockshelters, petroglyph panels, and artifact scatters. Evidence of historic use includes a corral, cistern, and mine shaft. The spring was used to supply water to the mining town of Gold Crater, situated 2 km to the west-southwest. Further to the south, an obsidian toolstone source at Obsidian Butte (site 26NY400), a rockshelter habitation site at Monte Cristo Spring (site 26NY382), a second rockshelter/campsite (26NY381), and a lithic scatter (26NY383) were recorded as a result of the Project Seafarer survey.

Properties recorded north of the SA-5 Target project area during the Project Seafarer survey include a mining camp (site 26NY370) at a spring on the western face of the Cactus Range, a mining settlement with structures and a corral near Cactus Spring (site 26NY366), and the Urania Mine with associated structures (site 26NY368). East of the project area, another mining settlement with structures and a corral (site 26NY364) was recorded at the eastern side of Antelope Pass in association with Antelope Springs.

TABLE 4.1
PREVIOUSLY RECORDED SITES IN PROJECT VICINITY
SA-5 TARGET PROJECT

Page 1 of 3

SITE	SITE TYPE ^a	NATIONAL REGISTER ELIGIBILITY STATUS ^b	REFERENCE	COMMENTS
26NY364	H - Mining settlement with structures and corral	Eligible	Ferraro et. al 1975 Bergin 1979	Antelope Springs
26NY366	H - Mining settlement with structures and corral	Eligible	Ferraro et. al 1975 Bergin 1979	Cactus Spring
26NY368	H - Mine with associated structures	Eligible	Ferraro et. al 1975 Bergin 1979	Urania Mine
26NY369	H - Mine shaft, corral, and cistern P - Rockshelters, petroglyphs, and artifact scatters	Eligible	Ferraro et. al 1975 Bergin 1979	EOD Hideout; Civet Cat Cave; historical water source for town of Gold Crater (with Stonewall Spring)
26NY370	H - Mining camp	Eligible	Ferraro et. al 1975 Bergin 1979	Near unnamed spring
26NY381	P - Rockshelter/campsite	Eligible	Ferraro et. al 1975 Bergin 1979	Monte Cristo Spring
26NY382	P - Rockshelter/campsite	Eligible	Ferraro et. al 1975 Bergin 1979	Monte Cristo Spring
26NY383	P - Lithic scatter	Eligible	Ferraro et. al 1975 Bergin 1979	
26NY400	P - Obsidian quarry	Eligible	Ferraro et. al 1975 Bergin 1979	Obsidian Butte
26NY469	P - Rockshelter complex	Eligible	--	Civet Cat Canyon

TABLE 4.1
PREVIOUSLY RECORDED SITES IN PROJECT VICINITY
SA-5 TARGET PROJECT
(Continued)

Page 2 of 3

SITE	SITE TYPE ^a	NATIONAL REGISTER ELIGIBILITY STATUS ^b	REFERENCE	COMMENTS
26NY1331	H - Mining camp	Eligible	Bergin and Roske 1978 Bergin 1979	Also known as O'Brien's Camp
26NY1332	H - Townsite	Eligible	Bergin and Roske 1978 Bergin 1979 Crownover 1981	Gold Crater
26NY1401	H - Homestead and well	Eligible	Bergin 1979	White Patch Draw
26NY1415	H - Mine shaft and trash scatter	Undetermined	Bergin 1979	
26NY1422	H - Mine	Not Eligible	Bergin 1979	
26NY1423	H - Mine	Not Eligible	Bergin 1979	
26NY1424	P - Lithic scatter	Undetermined	Bergin 1979	Civet Cat Canyon vicinity
26NY1425	P - Lithic scatter	Undetermined	Bergin 1979	Civet Cat Canyon vicinity
26NY1447	P - Lithic scatter	Not Eligible	Bergin 1979	
26NY1448	P - Lithic scatter	Not Eligible	Bergin 1979	
26NY1480	H - Rock enclosure and mine testpits tailings	Undetermined	Bergin 1979	White Patch Draw
26NY1497	P - Lithic scatter	Undetermined	Bergin 1979	Civet Cat Canyon vicinity
26NY2194	H - Settlement with windmill pump and foundation, well, corral, water tank, and trash scatter	Eligible	Crownover 1981	Desert Well, stop on the historic Goldfield- Gold Crater Road

TABLE 4.1
PREVIOUSLY RECORDED SITES IN PROJECT VICINITY
SA-5 TARGET PROJECT
(Continued)

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SITE	SITE TYPE ^a	NATIONAL REGISTER ELIGIBILITY STATUS ^b	REFERENCE	COMMENTS
26NY2195	P - Lithic scatter	Undetermined	Crownover 1981	Desert Well
Goldfield- Gold Crater Road	H - Road	Eligible	Crownover 1981	Unrecorded
--	P - Rockshelter complex	Eligible	Crownover 1981	Unrecorded complex within Civet Cat Canyon
85-1	H - Isolated find	Not Eligible	Bergin 1979	
85-2	H - Isolated find	Not Eligible	Bergin 1979	
85-3	H - Isolated find	Not Eligible	Bergin 1979	
71-5-2	P - Isolated scraper	Not Eligible	Crownover 1981	

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^aH represents historic period remains.

P represents prehistoric or aboriginal remains.

^bThe recommended NRHP eligibility status is listed. No formal Determinations of Eligibility, as required by the Section 106 Compliance process, have been pursued.

During 1978, the North Nellis Air Force Range was investigated as part of an overall cultural resource study of the Nellis Bombing and Gunnery Range undertaken in support of an EIS addressing the continued withdrawal of public land for USAF use. This range-wide effort was undertaken by the Museum of Natural History, University of Nevada, Las Vegas, to develop an understanding of the type, distribution, and significance of cultural properties managed by Nellis Air Force Base. The project was initiated with an intensive archival search and literature review that included preparation of an historic overview for the Nellis military reservation (Bergin and Roske 1978). This was followed by the field survey of a statistically-based sample of the Nellis territory, which includes the Nellis Ranges, Tonopah Test Range, and Pahute Mesa (Nevada Test Site) (Bergin 1979).

For the archival search and literature review, 48 sources of information were examined including historical maps, newspapers, and journals. Using U.S.G.S. maps, a series of historical settlements were recorded based on the results of the archival research (Bergin and Roske 1978). In the SA-5 Target project vicinity, these historical properties include the townsite of Gold Crater (site 26NY1332) and Wellington (site 26NY1331), which was also known as O'Brien's Camp. The California gold strike of 1848 brought the first recorded non-Indian groups onto the future Nellis Ranges. During the early 1900s, spurred by discoveries of gold and silver near Goldfield and Tonopah, mining camps and towns proliferated. The historical Goldfield-Gold Crater wagon road is situated west and south of the SA-5 Target project area and passes through Desert Well and Civet Cat Canyon. During the subsequent field survey to provide baseline data for the EIS, the recorded mining camps and towns were field-checked and recorded in greater detail.

For the Nellis EIS fieldwork, the 1 percent survey of the two-million acre North Nellis Air Force Range was subdivided according to a disproportional stratified random sampling scheme based on environmental variables sensitive to human occupation and use of the land and its resources. A total of 244 sample units, each 80 acres in area, was surveyed on the North Range. Within the sampling scheme, nine sample units were used to inventory the spring and well, northern desert shrub, and salt desert shrub environmental strata within 1.2-8 km (0.75-5 miles) of the SA-5 Target project area. Each of these sample units (numbered 2, 3, 4, 85, 105, 198, 201, 208, and 232) was 0.32 km² in area, oriented along a north-south axis and, except for sample unit 4, 0.2X1.6 km (1/8X1 mile) in dimension.

Within seven of the sample units, 15 cultural properties were recorded. Sample unit 211, located about 3.5 km north of the project area, contained two lithic scatters, sites 26NY1447

and 26NY1448. Sample unit 232, approximately 4 km south of the project area in the Civet Cat Canyon vicinity, contained three lithic scatters recorded as sites 26NY1424, 26NY1425, and 26NY1497. Situated approximately 5 km east of the project area, sample unit 85 contained five historical properties including two mines (sites 26NY1422 and 26NY1423) and three isolated finds (85-1, 85-2, and 85-3). Approximately 8 km to the northeast and northwest of the project area, five sites were recorded within four sample units surveyed in the foothills of the Cactus Range. Within sample unit 2, an historical structure with a well was recorded (site 26NY1482). Immediately to the north-northeast in White Patch Draw, two additional historical sites were recorded in sample unit 3--a homestead with a well (site 26NY1401) and a rock-walled enclosure in association with mine testpit tailings (site 26NY1480).

Southeast of this site cluster, in sample unit 4, lies the mining camp and well previously recorded as site 26NY370. On the eastern side of the Cactus Range, a mine shaft and historical trash scatter in sample unit 105 were recorded as site 26NY1415. The three sample units in the SA-5 Target project vicinity that were negative for cultural remains are numbered 198, which is located 1.5 km east of the project area, 201, which is situated near Civet Cat Canyon about 4.5 km south-southeast of the project area, and 208, which lies about 5 km northwest of the project area.

Further project-specific research was conducted in the North Nellis Range in 1980 as part of a base-wide inventory of targets and support facilities (Crownover 1981). Also conducted by the Museum of Natural History, University of Nevada, Las Vegas, for Nellis Air Force Base, five existing targets (71-1, 71-2, 71-3, 71-5, and 71-6) were surveyed in the general SA-5 Target project vicinity. All but one were negative for cultural remains, including the target area adjacent to the northeast corner of the SA-5 Target project area. The one exception is Target 71-5, which is situated at Desert Well, a settlement on the historical Goldfield-Gold Crater wagon road. Three cultural properties were recorded in this locale, one dating to the historical period and the other two to prehistoric times. Site 26NY2194 contains a well, a windmill foundation and pump, a large wood-and-pipe corral, and a concrete water storage tank. Scattered over the site are broken crockery and glass, barbed wire, wood planks, and railroad ties. According to the journal of an early geologist visiting the region, water was struck at a depth of 110 feet in the well (Ball 1907:83). The second site recorded, 26NY2195, is a light-density scatter of lithic flakes, a chert core, and a weathered obsidian Elko-eared projectile point distributed over a 10-15 m² area. The last property recorded is an isolated scraper (isolate 71-5-2). These properties are situated approximately 8 km west of the SA-5 Target project area.

4.2 RESULTS OF THE FIELDWORK

The intensive pedestrian survey of the SA-5 Target project area resulted in the identification of 11 historic properties, including isolated prehistoric flake tools and flakes, historic cans, bottles or glass scatters, and an historic road segment. Site locations are illustrated in Appendix A, and site records are found in Appendix B.

Site 26NY7800 is a glass scatter comprising a broken aqua-colored bottle distributed in shards over a 5X1 m area incorporating 5 m². The broken bottle is situated in the southeastern perimeter of the project area on the northern side of an historic road (site 26NY7813). Found at an approximate elevation of 1,560 m (5,120 feet), the shards lie on the gravelly surface of an alluvial deposit on the western side on the Cactus Range. The artifacts represent a single broken post-mold bottle with a crown finish, which could have been machine-applied. The aqua colored shards have air bubbles within the glass; the rim diameter is 1 inch, and the finish is 12/16 inch in height. The crown finish dates from the 1890s to the present, but was more common after 1912. Site integrity is excellent.

Site 26NY7801 comprises two isolated obsidian artifacts found about 15 m apart in the northeastern one-quarter of the project area. One item is a flake tool and the other is an unaltered flake. These items are situated at an approximate elevation of 1,542 m (5,060 feet) and were found on the surface of a sandy wash or in its vicinity. The flake tool is fabricated from a vitreous, thin, soft hammer percussion flake that has been unifacially pressure-flaked along one lateral edge adjacent to the platy platform. This artifact measures 3.9X3.1X0.5 cm. The second artifact is located about 15 m to the east-northeast. This unmodified hard hammer percussion flake exhibits a weathered, dull surface with subrounded edges and ridges. One surface, however, is less weathered, appearing vitreous, and may be more freshly-flaked. Blocky in cross section, the unmodified flake measures 2.5X1.7X0.4 cm. Site integrity is good.

Site 26NY7802 is an isolated silicified tuff or welded tuff flake tool. Found in the north-central portion of the project area, it is situated at an approximate elevation of 1,536 m (5,040 feet) on an unconsolidated pea gravel surface. The flake tool measures 8.9X2.5X1.5 cm and exhibits a triangular cross section and a C-shaped long section. Unifacial pressure-flake retouch and use wear is evident along one convex lateral edge. The majority of the item displays a very weathered surface: the exterior is chalky and white, and the keel and edges are rounded. The utilized, retouched edge has been flaked through the weathered exterior surface, exposing a waxy-lustered toolstone within the nonweathered flake scars. This artifact may represent a curated item, possibly harvested from an older site or quarry, and retouched when it was needed. Site integrity is excellent.

Located in the north-central portion of the project area, site 26NY7803 is an isolated obsidian flake found at an approximate elevation of 1,538 m (5,045 feet) on an unconsolidated pea-gravel covered surface. The artifact is a facial thinning flake of obsidian with possible utilization scars on the lateral edges. It has a pronounced arrete, slightly curved, on the dorsal surface, and measures 3.2X1.3X0.3 cm. The exterior does not appear to be weathered, and the flakes edges and ridges are sharp and unrounded. Site integrity is excellent.

Site 26NY7804 is an isolated historic hole-in top can that was recorded in the central portion of the SA-5 Target project area. Situated at an approximate elevation of 1,548 m (5,080 feet), the can was observed on the gravelly surface of the lower portion of the alluvial fan on the western slope of the Cactus Range. The hole-in-top can measures 4-9/16 (high) X 3-10/16 (diameter) inches. The cap, centrally located in the top, is 2-3/16 inches in diameter; the hole is in the central portion of the cap. This rusted can has stamped ends, a double-seam side seam, and soldered-on cap. It was opened mechanically counter-clockwise. Characteristics of the can indicate a chronology of 1888-1930. Site integrity is excellent.

Found along the southeastern perimeter of the project area, site 26NY7805 is an isolated obsidian flake situated on the unconsolidated pea gravel surface of an alluvial deposit at an approximate elevation of 1,567 m (5,140 feet). The artifact is a translucent facial thinning flake that is triangular in cross section and measures 3.3X2.3X0.5 cm. No utilization or retouch is apparent, but the artifact surface is dulled from weathering. Site integrity is excellent.

Another historic glass scatter, site 26NY7806, like site 26NY7800, is associated with the historic road segment recorded as site 26NY7813 in the southeastern corner of the project area. Situated at approximately 1,573 m (5,160 feet), the scatter is located on the gravelly surface of an alluvial deposit on the southern side of the historic road. The site is comprised of about 20 fragments of a large, aqua-colored oil or brandy bottle distributed over an approximate 7 m² area. The bottle glass has air bubbles. The base is 7-10/16 inches in diameter and has a post-bottom mold seam. The rim has an oil or brandy finish with an applied lip (seal is applied). The diameter of the rim is 1-6/16 inches, the finish length is 1-6/16 inches, and the neck-to-shoulder length is 4-8/16 inches. Based on attributes of this broken bottle, its estimated period of manufacture is the 1880s-1920s. Site integrity is good.

A reddish-colored chert/chalcedony flake tool, site 26NY7807 is situated at an approximate elevation of 1,536 m (5,041 feet) on an unconsolidated pea gravel surface in the central portion of the project area. Displaying a pronounced ventral curvature, the flake tool is manufactured from a

large facial thinning flake that had been removed by hard-hammer percussion. The artifact measures 5.3X4.0X1.0 cm, and bifacial use wear is evident along two lateral edges, including a section near the flat flaking platform. The ventral surface has flake scars from previous flake removals while the dorsal surface is smooth. Site integrity is excellent.

Site 26NY7808 is an isolated historic hole-in-top can situated in a gravelly ephemeral wash at an approximate elevation of 1,539 m (5,050 feet). The artifact is a condensed milk can that is 2-9/16 inches high and 2-9/16 inches in diameter. The diameter of the cap that contains the hole is 15/16 inch. The can has stamped ends and a double-seam side seam. Two sets of openings are evident on the can: (1) two knife punctures on the bottom, and (2) a semicircular counter-clockwise opening made with a knife on the top. Attributes of the can indicate an approximate chronology of 1888-1930. The artifact is subject to occasional stream flow and has probably been redeposited from an upgradient location.

Site 26NY7809 is a complete blue-green, 1-quart beer bottle found and collected in the southeastern portion of the SA-5 Target project area. This was the only item collected during the fieldwork. The bottle was manufactured in a post-bottom mold, and has a bulb neck with a crown finish. The bottle mark on the base identifies the bottle as a product of the Adolphus Busch Manufacturing Company. The artifact is 12-1/16 inches in height with a base diameter of 3-2/16 inches. The characteristics of the bottle indicate a manufacture date between 1904-1907. Situated at an elevation of 1,557 m (5,110 feet), the bottle was resting in a broad ephemeral wash of an alluvial plain; this wash may have been used for access to the Antelope Springs mining district during historic times. The collected bottle will be curated at the Nevada State Museum, Carson City, Nevada.

Site 26NY7813 is a segment of an historic road that transects the southeastern corner of the SA-5 Target project area in a northeast-to-southwest direction. Sites 26NY7800 and 26NY7806, both glass scatters, are in association with this historic road, which may have connected the Antelope Springs mining district with the mining operations at Gold Crater and its vicinity, including Wellington (O'Brien's Camp), Trappman's Camp, and major mining towns to the west and north such as Goldfield and Tonopah.

Situated at an elevation of 1,561 m (5,120 feet), the historic road segment is visible as a linear swath of relatively-cleared vegetation that has experienced natural revegetation resulting in short, immature plant specimens in the roadway. In addition, the road is apparent by the "ghost" presence of a two-track footprint on the desert surface. The site was discovered at the end of the last day of fieldwork for the SA-5 Target project, a time frame that limited our ability to trace the

full extent of the road beyond the project area. Using the electronic distance measurer, three coordinate readings were made on the road to identify its length and aspect in the project area and near vicinity. The road segment is visible beyond the segment mapped, but no further field reconnaissance of the property was made due to the lack of Nellis Range access beyond the scheduled window and potential impacts to the project budget.

The historic two-track road was probably formed by horse- or mule-drawn wagon traffic. The recorded portion of the property is approximately 150 m long and 2 m wide, incorporating about 300 m². The aspect of the road is generally northeast-to-southwest at a heading of N65°E. The two glass scatters in direct association with this road have an estimated chronology of the 1880s to the 1920s. These factors were used to determine that the road was historic and was probably related to the mining boom period in Nye County. Aside from some natural erosional factors, such as surface runoff and wind deflation, the contextual integrity of the road appears to be excellent.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The archival records search and intensive pedestrian survey completed for the SA-5 Target project revealed low intensity use of the project area during prehistoric and historic times, but more intensive uses of the surrounding vicinity. Survey conditions varied during the fieldwork from excellent to moderately poor with cloudiness, wind, rain, and hail. The survey method and intensity, however, were sufficient to provide an accurate inventory of historic properties within the project area, as based on surface evidence. The likelihood for the occurrence of buried cultural deposits in the project area is considered negligible due to the depositional environment, which comprises alluvium dissected by braided drainages, and the lack of critical resources, such as a fresh water source.

5.1 RESEARCH CONCLUSIONS

The project vicinity has a notable historic character related to the turn-of-the-century mining boom in Nye County. Important properties in the project vicinity include the town of Gold Crater, the Goldfield-Gold Crater Road, and the settlements at Wellington, Desert Well, White Draw Pass, Civet Cat Canyon, Antelope Springs, and Cactus Spring. Goldfield, located approximately 37 km west-northwest of the project area, was founded in 1902 after the discovery of gold and silver in the nearby Columbia Mountain foothills. By 1906, Goldfield was the largest city in Nevada, with more than 30,000 people. Typical of the mining boom-bust cycle (discovery, exploitation, abandonment), the population of Goldfield quickly declined as mineral deposits in the area were exhausted. Goldfield (as well as Tonopah to the north, which was founded in 1900) facilitated historic mineral exploration of the North Nellis Air Force Range by drawing miners into the area and serving as a supply point and social center. Numerous mines, adits, and prospects in the mountain and foothill areas are illustrated on U.S.G.S. topographic maps of the project vicinity.

The townsite of Gold Crater was established in 1904, and an official plat map was filed. Ball (1907) describes the settlement as a busy camp with 200 or more inhabitants. Less than two years after the first strikes of gold in 1904 and before the building of the town, however, Gold Crater was abandoned, and many of the inhabitants moved eastward to the town of Gold Reed, situated in the Kawich Range (Ball 1907). The miners, who had been living in dugouts and stone structures, left behind a wide range of artifacts and features including a cleared road, cooking implements, the residences, historic trash, large hinged bellows (indicating blacksmithing), mining features, and others. Copies of the *Reno Gazette* dated 1904 were used to fill in chinks in the stone structures (Crownover 1981; Bergin 1979).

The historic road segment in the project area, site 26NY7813, probably extends to connect the Goldfield-Gold Crater Road to mining operations and settlements in the Wellington Hills and Antelope Springs areas via Antelope Pass. Survey of the road feature beyond the SA-5 Target project area boundary and focused archival and literature research would be necessary to determine the transportation route's destinations and to bracket its period of use. The remainder of the historic period sites recorded during the fieldwork were isolated occurrences of cans or bottles. These may have been discarded during travel in the area, possibly by foot, horse, burro, or wagon modes of transportation. Many broad, flat-bottomed sandy washes in the southern one-half of the project area may have been used as travel routes into the Antelope Pass area.

Similar to the historic period sites, the prehistoric period sites in the project area reflect transient Native American use of the project area, possibly for travel. This pattern is typical of the Desert Archaic cultural tradition where the subsistence strategy was based on the movement of small groups of people, the size of a family, to various locations across the landscape as economically-important plant and animal foods became locally available. This subsistence system resulted in sparse, scattered remains except at seasonal base camps, which characteristically were located near dependable sources of water. The project area does not currently appear to have resources economically important to aboriginal peoples. The area has no potable water, no toolstone source, and no apparent important animal or plant resources. The area is too low for growth of the pinyon tree, whose nut was documented as a food staple during ethnohistoric and historic times, and no evidence for Indian rice grass or *Mentzelia* was observed. These latter plant species may not have been identified due to the overgrazed condition of the project area.

The flake tools (sites 26NY7801, 26NY7802, and 26NY7807) may be indicative of aboriginal resource extraction or processing activities conducted in the project area. For example, the tools may have been used to skin or butcher small animals such as rabbits or lizards or may have served as cutting or scraping implements for plant resources.

5.2 MANAGEMENT CONCLUSIONS

Eleven historic properties were inventoried within the SA-5 Target project area, one of which (site 26NY7813--the historic wagon road) is considered eligible for NRHP listing (Table 5.1). Site 26NY7813, is considered significant as an element of the historic transportation network of the region and as a feature of the early twentieth century mining boom in Nye County. The Nevada Historic Preservation Plan (HPP) points out that the "historic settlement and development

TABLE 5.1
HISTORIC PROPERTY MANAGEMENT SUMMARY

SITE	SITE TYPE ^a	NATIONAL REGISTER ELIGIBILITY STATUS ^b	COMMENTS
26NY7800	H - Aqua-colored glass scatter (broken bottle)	Not Eligible	ca. 1890s-1920s; associated with historic road site 26NY7813.
26NY7801	P - Obsidian flake tool and flake	Not Eligible	
26NY7802	P - Silicified/welded tuff flake tool	Not Eligible	
26NY7803	P - Obsidian flake	Not Eligible	
26NY7804	H - Hole-in-top can	Not Eligible	ca. 1888-1930.
26NY7805	P - Obsidian flake	Not Eligible	
26NY7806	H - Aqua-colored glass scatter (broken brandy or oil jug)	Not Eligible	ca. 1880s-1920s; associated with historic road site 26NY7813.
26NY7807	P - Red chalcedony flake tool	Not Eligible	
26NY7808	H - Hole-in-top condensed milk can	Not Eligible	
26NY7809	H - Complete blue-green 1-quart beer bottle	Not Eligible	ca. 1904-1907; artifact collected.
26NY7813	H - Two-track road	Eligible	

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^aH represents historic period remains.

P represents prehistoric or aboriginal remains.

^bThe recommended NRHP eligibility status is listed. Formal determinations consistent with the Section 106 Compliance process have not been initiated.

of most of the state of Nevada is directly linked to the location, recovery and processing of minerals and precious metals" (Lyneis 1982:235). Using mining as the base, the Nevada HPP recommends the systematic research and development of models to explain social, political, and technological growth and adaptation on the western frontier.

Hardesty (1986) identifies a number of cultural themes, temporal periods, and geographic units useful for the development of a historic context. Site 26NY7813 bridges two cultural themes: the mining and milling theme and the transportation and communication theme. The property is representative of the Late Bonanza (1900-1915) temporal period, although development may have occurred during the Depression period (1881-1900) and use may have extended into the Transportation and Federalism period (1915-1931). The geographic unit is arbitrarily selected to be the North Nellis Air Force Range.

Transportation of freight, passengers, and mail within the historical North Range territory was based on animal power during the Depression through Transportation and Federalism periods. A road network developed to link various mining camps with each other, with prospects or mines, and with major local transportation and communication hubs, such as Goldfield and Tonopah. The emerging overland roads or trails were serviced by way stations, which may have been the function of Desert Well (site 26NY2194).

Because site 26NY7813 demonstrates the potential to address a data gap relating to transportation, communication and social networks during the Late Bonanza period, and possibly earlier and later temporal periods, of Nevada state history, it is considered eligible for inclusion in the National Register of Historic Places under criterion (d) of 36 CFR Part 60.4, "properties that have yielded or may be likely to yield information important in prehistory or history." The site's value lies in its ability to delineate transportation networks among mining camps, prospects, and major transportation/social hubs. This system is, at best, partially known, since only those roads that continued in use are represented on U.S.G.S. topographic maps of the area. The road can also contribute to an understanding of engineering principles as they relate to limitations on the degree of slope feasible for animal-powered vehicles. Additionally, the road is likely to have in its association, unrecorded historic properties that are linearly distributed along its corridor.

In summary, site 26NY7813 is considered to have inventory value because the site type is poorly represented in the known history of the area. The property is considered to have moderate historical value because it can be associated with an important historical event--the turn-of-the-century mining

boom in central Nye County. The site is also considered to have scientific value because of information it can provide on historical road siting strategies, on as-yet unknown historical sites that may be in association with the road, and on the specific interaction of historical settlements, as interpreted from their presence within the road network.

5.3 RECOMMENDATIONS

It is recommended that site 26NY7813 be avoided during development and operation of the SA-5 Target, but no other portion of the project area requires special consideration for historic properties. This can be accomplished by shifting the target configuration approximately 90 m to the north or by eliminating a triangular area measuring approximately 180 m (E-W) by 100 m (N-S) from the southeastern corner of the project area. A 100 m-wide buffer along the northern project boundary was surveyed with negative results during the fieldwork effort, so shifting the target configuration northward is a feasible alternative.

The remaining nine sites recorded in the project area comprise isolated prehistoric or historical cultural materials that are not considered eligible for NRHP listing. The completed recordation of each site's location and material content satisfies documentation goals for these resources.

The historical road segment recorded as site 26NY7813 transects the extreme southeastern corner of the project area and continues to the northeast and southwest for an unknown distance. It is recommended that site avoidance be integrated into target development and the plan of operations. Service roads to inspect and clear the proposed target should be maintained at the northern boundary of the SA-5 Target. An existing road in this location currently accesses two existing targets situated immediately north and northeast of the proposed SA-5 Target. Access to the south for the proposed target can readily be achieved via this existing accessway.

It is recommended that no access road bordering the southern boundary of the SA-5 Target project area be developed, and that ordnance clearance staged from the southern project boundary should be avoided. Access to the proposed project area from the north, east, and west is not limited, but restriction of access from the south is recommended to avoid potential adverse effects to site 26NY7813.

If the historical road segment cannot be avoided, it is recommended that, at a minimum, thorough archival and field documentation of the resource be conducted. This effort would include:

- Review of historical newspapers, archived data, journals, and additional literature.
- Field reconnaissance of the road in both directions beyond the SA-5 Target project boundary.
- Recordation of additional historic properties found in association with the road.
- Mapping of the road and associated historic properties.
- Photography of the road and associated historic properties.
- Preparation of a technical report on the research findings, including a map.
- Curation of documentation, including the technical report, map, photographs, and field notes.

Should the intensive documentation effort uncover cultural values in addition to those addressed by the documentation research, it is recommended that a formal Determination of Eligibility for site 26NY7813 be pursued. This action would be consistent with the requirements of the Secretary of the Interior's Standards and Guidelines (NPS 1983) and 36 CFR Part 800.4(c).

Concurrence in the eligibility determination would be needed from the USAF and the Nevada State Historic Preservation Officer (SHPO). Should the property be determined eligible, a treatment plan would need to be approved by the Nevada SHPO and the Advisory Council on Historic Preservation (ACHP) if the property could be affected by the construction and operation of the SA-5 Target. Avoidance of the property during project construction and operations is the preferred technical treatment of the site.

The survey of the SA-5 Target project area resulted in the inventory of historic properties that were identifiable by surface evidence. Consistent with 36 CFR Part 800.11, should previously uninventoried historic properties be discovered during project construction or operations, project-related activities in the discovery area should cease and the Environmental Management Division (TFWC/EM) at Nellis Air Force Base should be contacted immediately. Activity in the project area should not resume until the procedures defined at 36 CFR Part 800.11 are completed.

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