A CULTURAL RESOURCES INVENTORY OF APPROXIMATELY 66.85 ACRES OF ARIZONA STATE TRUST LAND AND 265.88 ACRES OF PRIVATE LAND NORTHEAST OF DRAGOON, COCHISE COUNTY, ARIZONA

Excelsior Mining Arizona, Inc. – Gunnison Copper Project

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Cultural Resources Report 2017-03
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Project Number: 1979.02

WestLand Resources

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STATEMENT OF CONFIDENTIALITY

Disclosure of the locations of historic properties to the public may be in violation of both federal and state laws. Applicable United States laws include, but may not be limited to, Section 304 of the National Historic Preservation Act (16 U.S.C. 470w-3) and the Archaeological Resources Protection Act (16 U.S.C. §470hh). In Arizona, applicable state laws include, but may not be limited to, Arizona Revised Statute Title 39, Section 125.

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STATE HISTORIC PRESERVATION OFFICE REPORT ABSTRACT

REPORT TITLE: A Cultural Resources Inventory of Approximately 66.85 Acres of Arizona State Trust Land and 265.88 Acres of Private Land, Northeast of Dragoon, Cochise County, Arizona

REPORT DATE: January 6, 2017

PROJECT NAME: Gunnison Copper Project

PROJECT LOCATION: Northeast of Dragoon, Cochise County, Arizona

PROJECT LOCATOR UTM: 589793 mE; 3550419 mN

PROJECT SPONSOR: Excelsior Mining Arizona, Inc.

SPONSOR PROJECT NUMBER(S): n/a

LEAD AGENCY: Environmental Protection Agency

OTHER INVOLVED AGENCIES: n/a

APPLICABLE REGULATIONS: Arizona Revised Statute §41-841, *et seq.*; Section 106 of the National Historic Preservation Act (as amended) and the implementing regulations (36 CFR 800)

FUNDING SOURCE: Private

ASLD ROW APPLICATION NO.: n/a

DESCRIPTION OF THE PROJECT/UNDERTAKING: Excelsior Mining Arizona, Inc., is applying to the Environmental Protection Agency (EPA) for an Underground Injection Control Area Permit and contracted WestLand Resources, Inc. (WestLand), to conduct a cultural resources inventory of the permit area (the project area). The inventory was done to assist the EPA in meeting its obligations under Section 106 of the National Historic Preservation Act. Project-related ground-disturbing activities that could impact cultural resources eligible for inclusion in the Arizona and/or National Registers of Historic Places (A/NRHP) include the development of injection and extraction wells and the construction of pipelines and connection roads. The majority of the project area has been previously inventoried for the presence of cultural resources, except for approximately 17.7 acres (the survey area). WestLand surveyed this remaining acreage, and the results of the current survey and those of the previous inventories are incorporated herein.

PROJECT AREA/AREA OF POTENTIAL EFFECTS (APE): The proposed project is located within an irregularly shaped parcel of Arizona State Trust land and private land measuring approximately 3,800 feet north-south by 5,300 feet east-west (the project area) along both sides of Interstate 10 northeast of the unincorporated community of Dragoon.

LEGAL DESCRIPTION: The project area (within which the survey area is located) is situated in a portion of Section 36, Township 15 South, Range 22 East, and a portion of Section 31, Township 15 South, Range 23 East, Gila and Salt River Baseline and Meridian.

USGS 7.5′ QUADRANGLE(S): Dragoon

LAND JURISDICTION: Arizona State Land Department (ASLD) and private

TOTAL ACRES:

- **Project Area:** 332.73 acres (66.85 acres of ASLD land and 265.88 acres of private land)
- **Survey Area:** 17.7 acres (6.02 acres of ASLD land and 11.67 acres of private land)

ACRES SURVEYED: 17.7 acres during current survey [this report]; 332.73 total acres surveyed

ACRES NOT SURVEYED: 0

CONSULTANT FIRM/ORGANIZATION: WestLand Resources, Inc.

PROJECT NUMBER: 1979.02

PERMIT NUMBER(S): 2016-23bl

DATE(S) OF FIELDWORK: December 21, 2016

NUMBER OF IOS RECORDED: 4 in survey area (9 total in project area)

NUMBER OF SITES RECORDED: 0

ELIGIBLE SITES: 0

INELIGIBLE SITES: 0

UNEVALUATED SITES: 0

SITES NOT RELOCATED: 0

Site summary table

Land Jurisdiction	Identification Status	Site Number/ Property Address	Eligibility Status/ Criterion/Criteria	Recommended Treatment
No sites identified				

RECOMMENDATIONS/COMMENTS: Cultural resource surveys conducted in areas proposed for Excelsior Mining Arizona, Inc.'s Gunnison Copper Project resulted in the identification of nine isolated occurrences of cultural materials in the project area. The isolated occurrences are recommended ineligible for inclusion in the A/NRHP, and WestLand therefore recommends that no further cultural resource studies be undertaken in relation to the proposed project as currently defined. However, WestLand does provide the general recommendation that all ground-disturbing activities have the potential to unearth human remains and that all such discoveries should be treated in accordance with Arizona Revised Statutes §41-844 and/or §41-865.

INTRODUCTION AND PROJECT BACKGROUND

Excelsior Mining Arizona, Inc., contracted WestLand Resources, Inc. (WestLand), to conduct a cultural resources inventory in support of an application for an Environmental Protection Agency (EPA) Underground Injection Control Area Permit. The cultural resources inventory was undertaken to assist the EPA in meeting its obligations under Section 106 of the National Historic Preservation Act. Project-related ground-disturbing activities that could impact cultural resources eligible for inclusion in the Arizona and/or National Registers of Historic Places (A/NRHP) include the development of injection and extraction wells and the construction of pipelines and connection roads.

The project area is an irregularly shaped parcel of Arizona State Trust land and private land measuring 3,800 feet north-south by 5,300 feet east-west that is located along both sides of Interstate 10 northeast of the unincorporated community of Dragoon **(Figures 1, 2, and 3)**. It encompasses a total area of 332.73 acres of which 66.85 acres are located on Arizona State Land Department- (ASLD-) administered lands and 265.88 acres are on private land. The majority of the project area has been previously inventoried for the presence of cultural resources, except for approximately 17.7 acres (the survey area; **Figure 3**). WestLand surveyed this remaining acreage, and the results of the current survey and those of the previous inventories covering the remainder of the project area are incorporated herein.

The following sections begin with the previous archaeological research in the survey area and a historical map review, followed by the environmental and cultural settings of the area. Survey methods, survey results, and management recommendations are presented at the end of the report. **Appendices A** and **B** contain cultural resource information, including the locations of the previously identified and newly identified cultural resources.

The project and survey areas are located northeast of Dragoon, Cochise County, Arizona, in a portion of Section 36, Township 15 South, Range 22 East, and a portion of Section 31, Township 15 South, Range 23 East, Gila and Salt River Baseline and Meridian. They are depicted on the Dragoon 7.5' U.S. Geological Survey (USGS) quadrangle.

The cultural resources survey was performed on December 21, 2016, by WestLand archaeologist Bradford W. Stone. The project was conducted under the direction of Fred Huntington, who served as project manager, and Mark Chenault, who served as principal investigator. The cultural resources inventory resulted in the identification of four isolated occurrences of cultural materials in the survey area. (Nine total are located in the project area.)

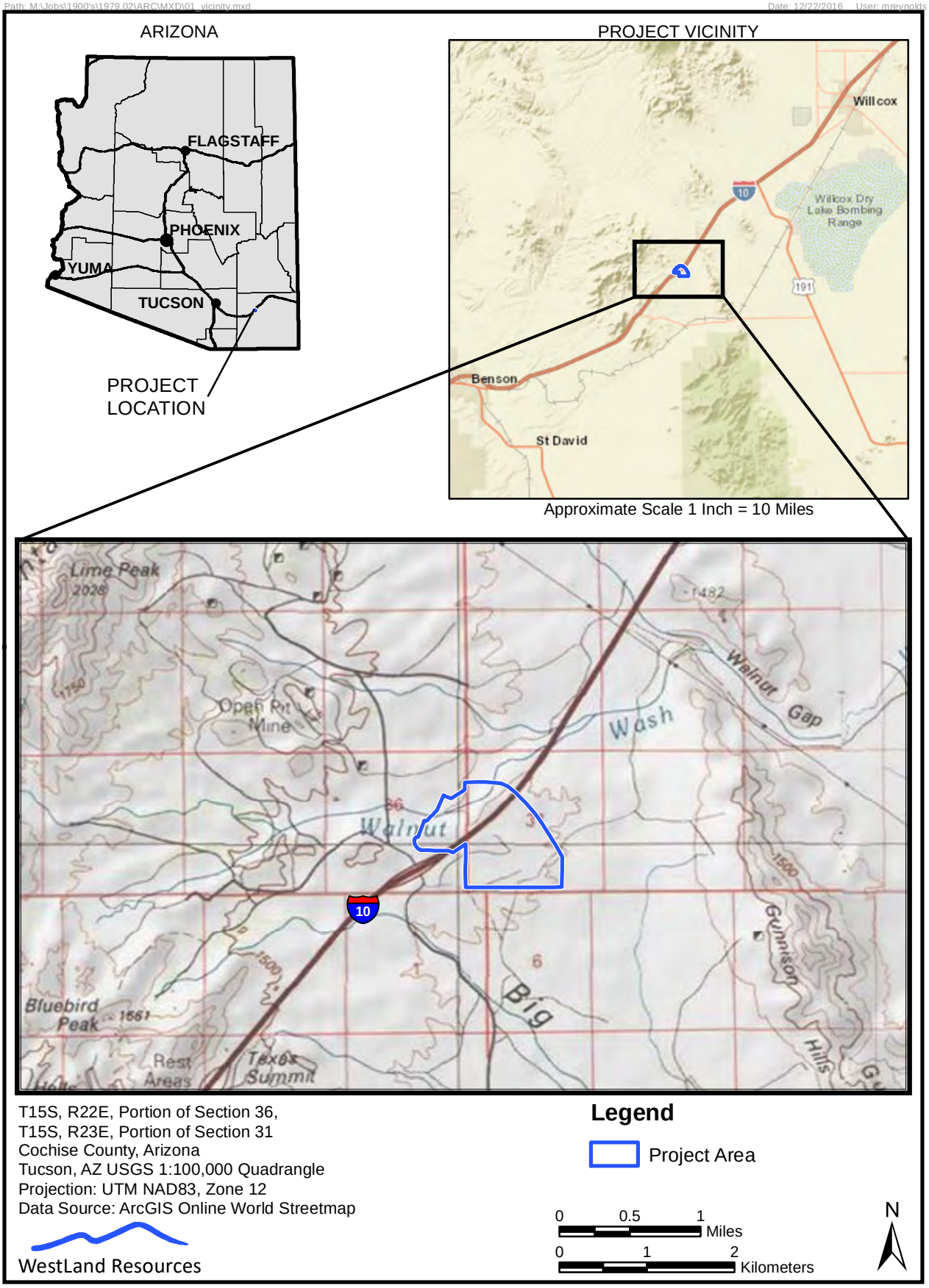
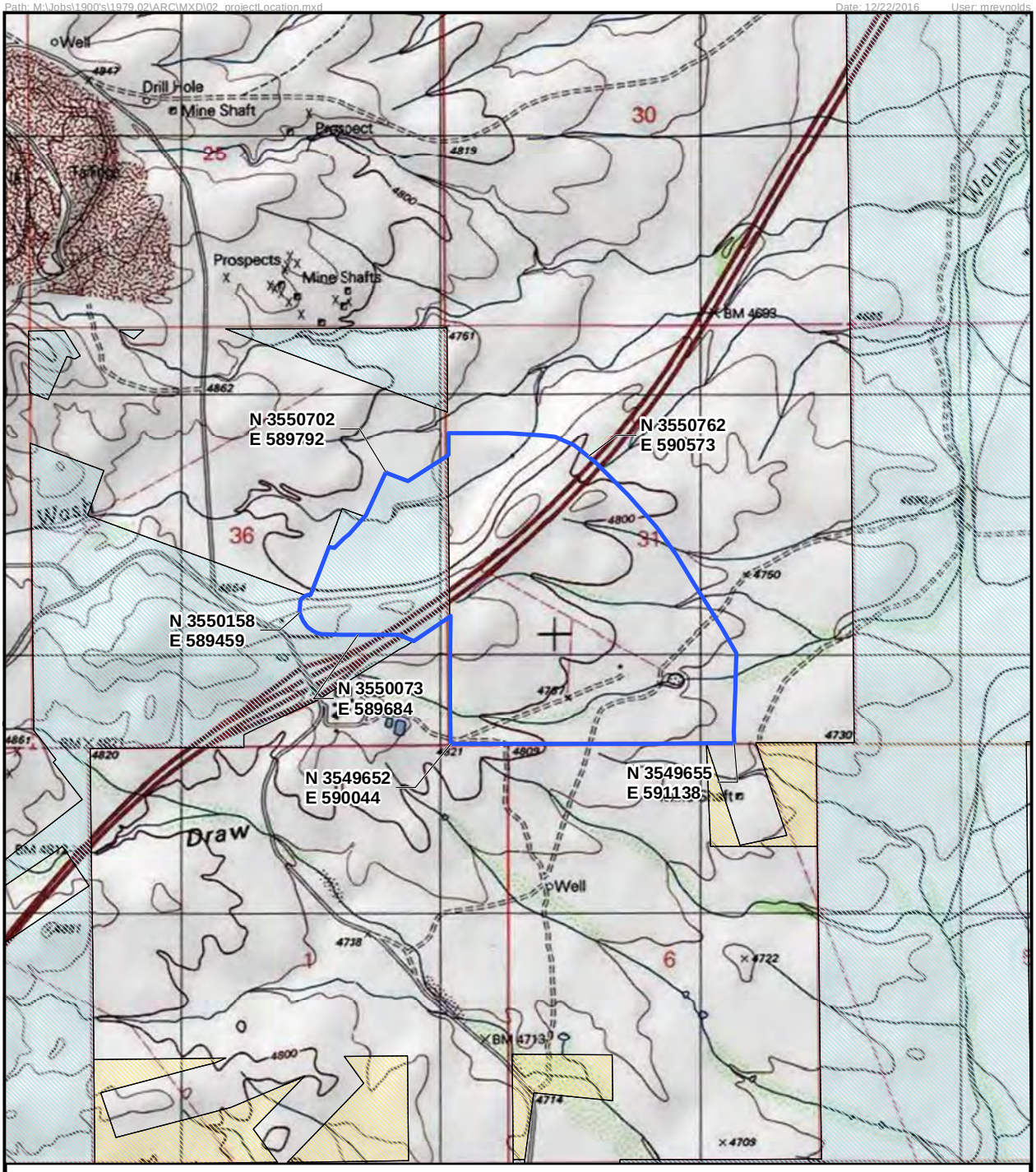


Figure 1. Vicinity map

Path: M:\Jobs\1900's\1979.02\ARC\MXD\02_projectLocation.mxd Date: 12/22/2016 User: mreynolds



T15S, R22E, Portion of Section 36,
T15S, R23E, Portion of Section 31
Cochise County, Arizona
Dragoon USGS 7.5' Quadrangle
Projection: UTM NAD83, Zone 12
Data Source: BLM Surface Management (2014)
modified by Excelsior Mining (2016)

WestLand Resources

0 1,000 2,000 Feet

0 500 1,000 Meters

N

Legend

Project Area

Surface Management

Bureau of Land Management (BLM)

Private Land (No Color)

State Trust Land

Figure 2. Project location showing surface management

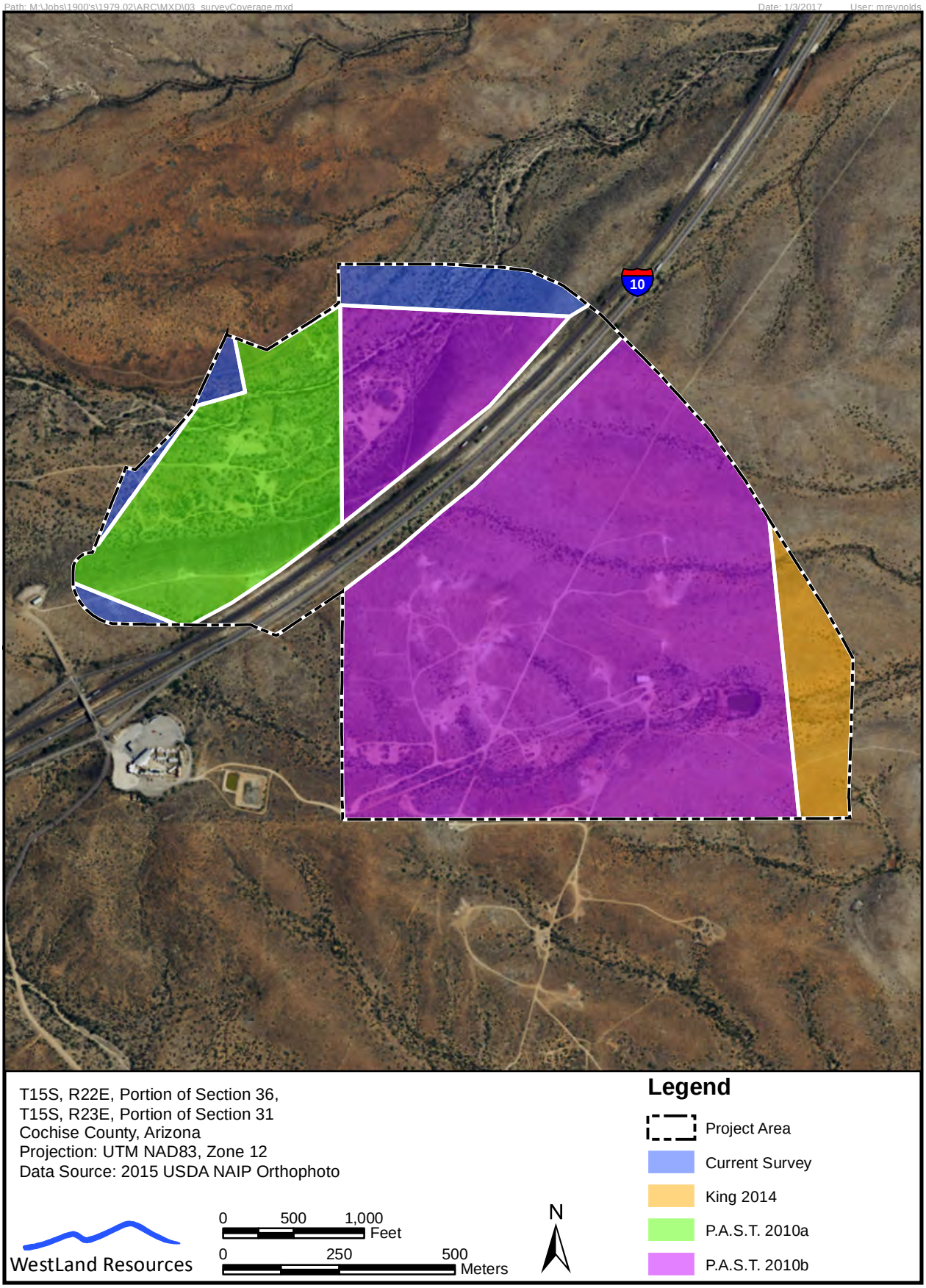


Figure 3. Current survey area

ARCHAEOLOGICAL RESEARCH AND RECORDS SEARCH

Prior to fieldwork, WestLand performed an archaeological records check and literature search of the site record files available through the Arizona State Museum (ASM) online cultural resources database (AZSITE). Information on previously recorded sites and survey projects within the project area and a surrounding 1.6-km (1.0-mile) buffer was used to provide baseline information on the cultural resources in the survey area.

According to AZSITE records, 13 cultural resources inventories have been conducted within the 1.6-km (1.0-mile) buffer surrounding the project area, four of which intersect the survey area **(Table A.1.; Figure A.1** [Appendix A]**)**. Most of these projects are related to utility infrastructure and mining.

AZSITE also documents 10 previously recorded archaeological sites within the 1.6-km (1.0-mile) buffer surrounding the project area, none of which intersects the survey area **(Table A.2; see Figure A.1** [Appendix A]**)**. These sites consist of prehistoric Native American artifact scatters with some features and historical Euroamerican features related to transportation, mining, and homesteading.

HISTORICAL MAP REVIEW

Historical maps such as General Land Office (GLO) plats, USGS topographic quadrangles, and Mineral Survey plats can be extremely helpful in tracing the historical development of a particular area and with the field-identification of historical sites. As part of the current project, WestLand reviewed the historical maps listed below prior to performing the field survey. Images of a selection of the maps listed below are located in **Appendix C**.

- Map of Cochise County, Arizona Territory, 1885
- Map of Cochise County, Arizona Territory, 1888
- Official Map of Cochise County, compiled by John A. Rockfellow, 1904
- Official Relief Map of Cochise County, compiled by John A. Rockfellow, 1914
- 1943 Dragoon 15' USGS quadrangle, imprint year 1948 **(Figure C.1** [Appendix C]**)**
- 1958 Dragoon 15' USGS quadrangle, imprint year 1959
- 1958 Dragoon 15' USGS quadrangle, imprint year 1961
- GLO plat for Township 15 South, Range 22 East, surveyed in 1907 **(Figure C.2** [Appendix C]**)**
- GLO plat for Township 15 South, Range 23 East, surveyed between 1907 and 1916 **(Figure C.3** [Appendix C]**)**

- Supplemental Plat of Section 31, Township 15 South, Range 23 East, approved in 1922
- General Highway and Transportation Map, Cochise County, Arizona, prepared by the Arizona State Highway Department, 1937

Research conducted using historical maps of the area revealed several historical features near the project area. The 1885, 1888, 1904, and 1914 maps denote the nearby settlements of Russelville and Hubbard to the southwest and Johnsonville to the northwest. The latter became known as Johnson Camp, a productive copper mining area. The supplemental plat of Township 15 South, Range 23 East, Section 31 shows the Legal Tender Lode mining claim immediately adjacent to the southwestern edge of the project area, and all versions of the Dragoon USGS quadrangle maps show mining features in this area. The Legal Tender Lode mining claim was surveyed in 1915 (Mineral Survey No. 3229) and patented by the Standard Mining Company, headed by O. T. Smith, in 1916 (GLO Patent Number 540583; Cooper and Silver 1964:177). In 1915, improvements to the claim included "6 shafts, 1 cut and tunnel, 2 drifts, 1 station, and 1 stope, total value $13041.00" (Mineral Survey No. 3229). According to the USGS Mineral Resource Data System (USGS MRDS 2016), the ownership of the claim (Deposit ID No. 10039390) passed to a Mrs. Thomas Adams of Dragoon, Arizona, in 1955. The primary commodity at the claim was copper, although no ore production is recorded; however, "a few tons of low-grade material are piled near the main shaft as though intended for shipment" (Cooper and Silver 1964:177; USGS MRDS 2016). Cooper and Silver conducted geological testing at the claim site in the 1940s and reported the findings in their 1964 work *Geology and Ore Deposits of the Dragoon Quadrangle*. Ranching in the vicinity of the project area is represented on historical maps by several cattle tanks south and southwest of the project area. A road indicated on the GLO plats of Township 15 South, Ranges 22 and 23 East **(see Figures C.2 and C.3** [Appendix C], respectively**)** is present in the project area and was documented as Isolated Occurrence 9 during the current survey **(Figure B.1** [Appendix B]**)**; the road is not, however, shown on the 1943 Dragoon 15' USGS quadrangle, imprint year 1948 **(see Figure C.1** [Appendix C]**)**.

Survey Expectations

Based on prior archaeological work in the vicinity of the survey area, WestLand expected to identify sites and isolated occurrences related to prehistoric Native American and Historic period Euroamerican use of the area. Previously identified prehistoric sites have been attributed to the Formative period based on the presence of ceramic artifacts, although Archaic period sites have also been reported nearby. Based on the previously recorded sites and WestLand's historical map review, Historic period Euroamerican resources in the survey area were anticipated to be largely attributable to utilities, roads, mining, and ranching activities.

PHYSIOGRAPHIC CONTEXT

The project area is located within the Basin and Range physiographic province in a narrow basin formed by the Gunnison Hills to the east, the Dragoon Mountains to the southeast, the granite formations of Texas Canyon to the west, and the Little Dragoon Mountains to the northwest. The local landform consists of low finger ridges and intervening drainages, components of the alluvial fans that emanate from the Little Dragoon Mountains and Texas Canyon formations. The project area slopes generally toward the east-northeast, and the major drainage, Walnut Wash, flows in that direction. Elevations range from 4,740 to 4,885 feet above mean sea level. Sediments in the project area are generally alluvial and colluvial slope deposits of conglomerate bedrock and sandy loam with moderate- to high-density gravel and cobble deposits. The gravels and cobbles are made up of limestone, shale, quartz, and various sedimentary rock types. The nearby Legal Tender mining claim includes a small knoll composed of Horquilla Limestone, a "limestone with abundant thin beds of shale" (Cooper and Silver 1964), which was historically exploited by several mining operations. The project area is located within the Semidesert Grassland biotic community (Brown 1994). Precipitation typically ranges from 9.8 to 18 inches per year. Vegetation is dominated by perennial bunch grasses, with some annual grasses and forbs and occasional yuccas and velvet mesquites. The biotic community of the project area appears to have been affected to a great extent by cattle grazing, as it has been invaded by shrubs, trees, and cacti. Typical species found throughout the project area are Lehman's love grass (*Eragrostis lehmanniana*), scrub velvet mesquite (*Prosopis velutina*), sotol (*Dasylirion wheeleri*), soaptree yucca (*Yucca elata*), beargrass (*Nolina microcarpa*), scrub acacia (*Acacia* sp.), turpentine bush (*Ericameria laricifolia*), ephedra (*Ephedra arenicola*), prickly pear (*Opuntia* sp.), cholla (*Cylindropuntia* sp.), barrel cactus (*Echinocactus* sp.), ocotillo (*Fouquieria splendens*), agave (*Agave* sp.), various mammillaria cacti (*Mammillaria* sp.), low flowering forbs, and grasses. Ground surface visibility throughout the project area is generally poor, ranging from 10 to 20 percent **(Photo 1)**.

Photo 1. Overview of the project area, looking north

In general, the project area has been affected by relatively few modern impacts. Cattle ranching operations in the vicinity have generated disturbances related to grazing and trampling, and fencelines, ranch roads, and mechanically excavated aggregate gravel pits and earthen cattle tanks have also left their mark on the landscape. Sparse modern trash is present.

CULTURE HISTORY

The brief overview of human prehistory presented here covers southeastern Arizona, arbitrarily bounded by the Middle San Pedro River Valley to the west, the international border to the south, the New Mexico border to the east and by the Pinaleño and Winchester mountain ranges to the north. This area is thought to represent a transitional cultural boundary during the last millennium of prehistory. A variety of environments are present in the region, including mountain tops, river valleys, and the bed of an ancient sea, which seem to have had a bearing on cultural developments and interactions. The following cultural history outline will focus on the cultural sequence as it pertains to this portion of southern Arizona. A summary of the various culture histories relevant to this area is presented in **Figure 4**.

Arizona is a geographically diverse landscape from the high desert Colorado Plateau in the northeast, across the rugged central mountainous zone, to the southern and western lowland desert basin and range territories. Archaeological evidence indicates that people have adapted to and inhabited this diverse landscape for more than 12,000 years. Over the tenure of human history, the environment has changed radically from the cooler and moister conditions of the late Pleistocene epoch to the warmer and drier conditions of today. As the environment changed, and as human populations increased over time, a variety of human cultures developed. Although these cultures did not arise and develop in isolation from cultures in other regions, it is evident that cultures in different geographic regions followed unique trajectories. Humans have responded in a variety of ways to the biological, geological, hydrological, geographical, and physiographical diversity of Arizona. The long tenure of human prehistory and history in Arizona is divided here into five major periods representing shifts in the human cultural adaptation: Paleoindian (11,500–8500 B.C.), Archaic (8500 B.C.–A.D. 1), Formative (A.D. 1–1450), Protohistoric (A.D. 1450–1691), and Historic (A.D. 1691–1963). These five main periods are often subdivided into briefer phases to represent cultural trends and developments specific to the various regions across Arizona.

The earliest evidence of people inhabiting Arizona is attributed to the Paleoindian period. Paleoindians are perceived as migratory, nomadic "big game" hunters who roamed North America at the end of the Pleistocene epoch. Using spears tipped with characteristically large fluted lanceolate projectile points, they hunted the now extinct megafauna of the terminal Pleistocene, particularly mammoth (*Mammuthus* spp.) and ancient bison (*Bison antiquus*) (Faught and Freeman 1998; Reid and Whittlesey 1997:30–37). The extinction of the large mammals and the warming and drying conditions of the Holocene epoch ushered in the Archaic period. Human populations responded to changes in the environment and resources by diversifying subsistence strategies, including hunting a wide range of animal resources and gathering a broad spectrum of wild plants (Mabry 1998; Mabry and Faught 1998). The Archaic period was punctuated by the hot and dry conditions of the middle Holocene "Altithermal" (Mabry 1998:30), leading to a virtual withdrawal from the lowlands and a reduced occupation of the highlands (Mabry 1998:65). Between about 3300 and 600 B.C., as temperatures cooled and rainfall increased, the number of Archaic period sites increased (Mabry 1998:29, 73).

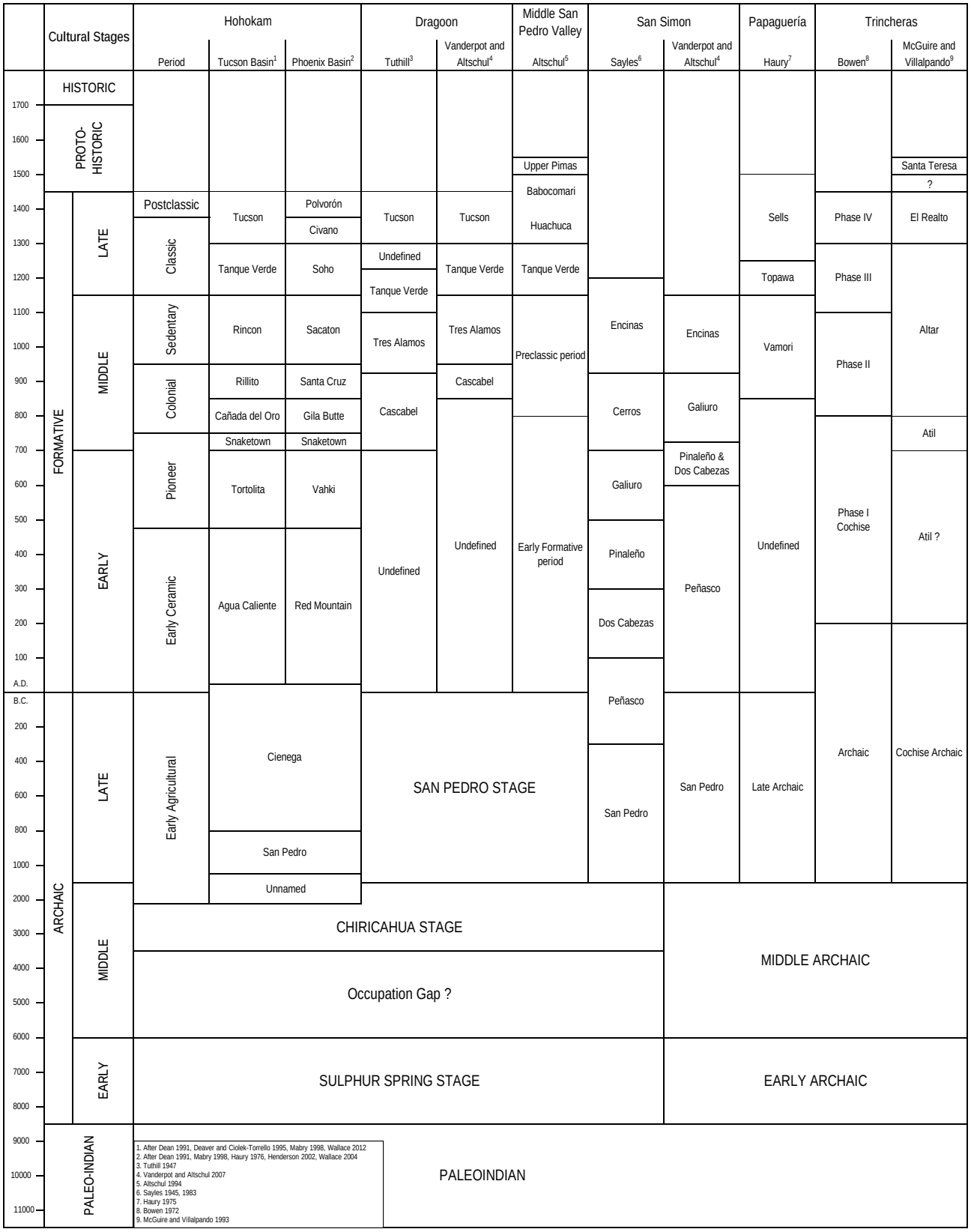


Figure 4. Cultural chronologies for the Tucson Basin and neighboring regions

The next significant step in the cultural development of Arizona was the introduction and development of agriculture. Current dating evidence places maize securely in the Southwest by 2100 B.C. (Merrill et al. 2009), but the transition to an agriculture-based subsistence adaptation developed later, around 1700–900 B.C. (Mabry 1998:73). The introduction of maize and the development of agriculture set the foundation for the cultural developments that followed. As a general statement, the ensuing Formative period is characterized by increases in population and the differentiation of these populations into the regionally distinctive cultural groups that we identify as the primary archaeological cultures of late prehistory, notably Ancestral Pueblo (Anasazi), Mogollon, Hohokam, Trincheras, and Casas Grandes. Prehistory in southern Arizona ends with the collapse of the late Formative period cultures and an apparent depopulation of the region. The subsequent Protohistoric period is poorly understood. Central and southern Arizona were sparsely occupied at first Spanish contact.

Early Spanish accounts of southern Arizona and the people provide the framework for what we know about the Protohistoric period. Spanish missionaries identified the peoples they encountered along the upper Santa Cruz and San Pedro Rivers as the Sobaipuri (Doelle and Wallace 1984, 1990; Gilpin and Phillips 1998:32; Masse 1981). The Sobaipuri apparently had occupied the territory since the end of prehistory and are hypothesized to have been the descendants of the prehistoric archaeological cultures in the region. The Athabaskan-speaking Apache occupied the vast mountainous regions below the Mogollon Rim in central and southeastern Arizona north and east of the Sobaipuri (Gilpin and Phillips 1998:68–70; Whittlesey 2003:243). The Apache probably entered the American Southwest late in prehistory and expanded their territory south across eastern Arizona. This expansion eventually brought the Apache into direct conflict with the Sobaipuri and later European settlers who were also expanding and colonizing southern Arizona. The Historic period commences with the arrival of Jesuit missionary Eusebio Kino and the establishment of Spanish missions and presidios in the Santa Cruz and San Pedro River Valleys in 1691. The Historic period can be characterized by increasing Euroamerican colonization, settlement, expansion, industrialization, and conflict (Spicer 1962). The Historic period is conventionally subdivided into Spanish, Mexican, and American periods reflecting shifts in governmental authority.

NATIVE AMERICAN OCCUPATION OF SOUTHEASTERN ARIZONA

Paleoindian Period (Pre-8500 B.C.)

The oldest evidence of human occupation in the Southwest is attributed to the Clovis complex. This complex is identified by a distinctive lanceolate spear point with a concave base, longitudinal fluting, and lateral and marginal grinding (Slaughter 1992:72). Several important Clovis sites are located in the upper San Pedro River Valley of southeastern Arizona, including Naco, Lehner, Escapule, and Murray Springs (Faught and Freeman 1998:41). Much of the evidence for a Clovis presence in Arizona comes from isolated occurrences of Clovis points (either whole or in fragments); for example, isolated Clovis points have been found in the

St. Johns and Winslow areas, in Saguaro National Park East and Willow Springs in the Tucson Basin, in the Avra Valley area west of the Tucson Basin, near Kartchner Caverns in the San Pedro River Valley, along Big Wash near Oracle Junction, in the area south of Gila Bend, on the northwest bajada of the Pinaleño Mountains, and in the Sanchez area in the Safford Valley (Faught and Freeman 1998:44; Neily 1985:10; Seymour et al. 1997:1–8).

The Folsom complex succeeded the Clovis complex. Folsom, like Clovis, is identified by a distinctive style of projectile point. Folsom points are also lanceolate fluted spear points; however, Folsom points are distinguished from Clovis points by the extent of the fluting, which extends the full length of the blade, from the proximal end to the distal end. In addition, the margins of these points were retouched after fluting. In Arizona, Folsom points have been found only in surface contexts on the Colorado Plateau and in the mountainous Mogollon Rim country. No Folsom points have been identified in southern Arizona (Faught and Freeman 1998:45).

Plainview is a third Paleoindian tradition or tool complex that has been identified on the Colorado Plateau and in the southern Basin and Range province (although not, to date, elsewhere in Arizona). The Plainview tradition is attributed to the late Pleistocene or early Holocene period. Plainview points consist of several subtypes, including Meserve, Milnesand, and Belen points. All these points resemble Clovis points in their basic configuration, but they are unfluted (Faught and Freeman 1998:47). A few fragmentary projectile points resembling the Plainview type have also been found on the eastern Santa Catalina bajada and in the interior of the Tortolita Mountains (Huckell 1984). Later Paleoindian complexes have not been identified anywhere in southern Arizona (Faught and Freeman 1998).

Archaic Period (8500 B.C.–A.D. 1)

The Archaic period was characterized by the collecting of a broad spectrum of wild plant and animal resources for subsistence. The large Pleistocene animals hunted in the Paleoindian period had become extinct by the beginning of the Archaic period, although it has been suggested that the two subsistence strategies overlapped temporally and possibly spatially (Faught and Freeman 1998:50). The hunting of megafauna may have been an opportunistic component of what was otherwise a subsistence strategy resembling that typified by the term *Archaic*. Nevertheless, a rough temporal marker of 8500–8000 B.C. has been chosen as the starting point of the Archaic period, as it was around this time that a ground stone tool industry consisting (initially) of one-handed manos and slab metates became common across the Southwest (Huckell 1996:306, 327). This has been taken to imply that many plant resources (seeds in particular) were not exploited by people using Paleoindian subsistence strategies and that the beginning of the Archaic marks a broadening of the resource base.

The phrase *Archaic period* refers both to a division of time and the lifeway practiced by the ancient peoples during that time. Geographically, the period of time designated by archaeologists

as the Archaic is subdivided into several regions spanning the Southwest as a whole. In the southern Basin and Range region of the Southwest, the broad cultural manifestation termed the *Archaic* is known as the Cochise culture. This culture is distinguishable from four co-traditions: the Colorado Plateau/Great Basin Complex, the Oshara Tradition, the Armagosa, and the Chihuahua Tradition. Temporally, the Cochise culture is subdivided into three broad divisions: Early, Middle, and Late.

The Early Archaic period (ca. 8500–6000 B.C.) of the Cochise culture is known as the Sulphur Springs phase. Sayles and Antevs (1941) originally defined this phase in the Sulphur Springs Valley in southeastern Arizona (Reid and Whittlesey 1997:44). Their archaeological work took place prior to the advent of radiocarbon dating techniques, so there was no independent chronological evidence for dating this early Cochise manifestation. The absence of independent dates contributed to Sayles originally concluding that a Paleoindian tradition (typified by the exploitation of megafauna) co-existed with a hunting-and-gathering tradition that exploited smaller game and various plant resources (as reflected in an artifact assemblage composed of flat milling stones, unifacial scrapers, and other lithic implements). This assessment turned out to be incorrect; however, reexamination of the Sulphur Springs material did establish a reliable beginning date of ca. 8500 B.C. for the Sulphur Springs phase (Huckell 1996:339). Even though they have now been dated with certainty, the sites investigated by Sayles did not include any artifacts that were stylistically distinctive and, therefore, temporally diagnostic. There has been a lack of diagnostic projectile points recovered from Early Archaic sites in southern Arizona that can be directly correlated in time with the Sulphur Springs phase, and sites dating to this era are not always recognizable without direct methods of dating, such as radiocarbon (Huckell 1996:329).

The Middle Archaic period (ca. 6000–1200 B.C.) of the Cochise culture—known as the Chiricahua phase—is typified by the addition of shallow basin metates, mortars and pestles, various bifacial tools, and distinctive side-notched projectile points (Chiricahua points) to the overall tool assemblage (Freeman 1999; Huckell 1996:342; Mabry 1998). Generally, the Middle Archaic period was a time during which regional variations in the material culture across the Southwest became less pronounced. In particular, projectile points take on a similarity of design over large geographic regions (Mabry 1998). Chiricahua points, for example, are similar in style and manufacture technique to Northern Side-notched, Pinto, and San Jose points, all found in other areas of Arizona (Slaughter 1992:70). It is during the Middle Archaic period that evidence of permanent or semi-permanent domestic architecture appears, although bands of people probably remained highly mobile. The first Mesoamerican cultigens (including maize) also arrived in the Southwest during this period, perhaps as early as 2000 B.C. (Huckell 1996:343; Mabry 2005:114).

The Late Archaic period (ca. 1200 B.C.–A.D. 1) appears to have been a time of increasing adaptation to agriculture as the primary subsistence strategy. The prevalence of maize agriculture has led some researchers to refer to this period as the Early Agricultural period (Huckell 1996).

It remains unclear whether the adoption of agriculture along with its corresponding changes in social and political relationships and settlement patterns occurred simultaneously across the Southwest. The earliest direct dating of maize from various parts of the Southwest suggests an essentially contemporaneous adoption of this cultigen about 4,000 years ago (Mabry 2005). However, adaptations to this early agricultural product were not the same in all regions, with many people retaining a way of life that could continue to be characterized as Archaic (Diehl 2005; Huckell 1996). Hunting-and-gathering practices remained a vital subsistence strategy throughout the Late Archaic/Early Agricultural period as evidenced by macrobotanical, zooarchaeological, and human osteological data (Diehl 2005:182). Additional evidence suggests that some groups did not cultivate maize at all. The Coffee Camp site, for instance, at the southern edge of the Santa Cruz Flats provides evidence of a semi-sedentary lifestyle coupled with a continued reliance on wild plant and animal resources (Halbirt and Henderson 1993).

In the south, the Cochise culture entered its penultimate cultural stage, the San Pedro phase (1500–800 B.C.), which was named for the type-site first investigated by Sayles on the San Pedro River (Sayles and Antevs 1941). Apart from its distinctive corner- and side-notched projectile points, the San Pedro phase is typified by (1) small oval pithouses, often with large interior bell-shaped storage pits and similar extramural pits (both of which reflect the importance of storage in a subsistence economy that includes the growing of crops); (2) flexed inhumations; (3) refinements in ground stone technology; and (4), in the Santa Cruz River Valley, canal-irrigated farming. Also notable during the Late Archaic period was a ceramic tradition of figurines, beads, and miniature vessels (Heidke 2005; Stinson 2005). Although the miniature vessels are argued to be incipient pottery (Heidke 2005), these objects have decorative qualities reminiscent of baskets and are similar to ceramic effigies found in Early Formative period contexts at other sites (Haury 1976). Late Archaic incipient pottery may be part of the ceramic effigy tradition.

Until relatively recently, the San Pedro phase was considered the final stage of the Cochise culture. Archaeological work in Tucson and other areas, however, has unearthed evidence that has led to the definition of an additional phase, the Cienega phase, for the final pre-ceramic stage of the Cochise culture in southern Arizona (Gregory 2001:253; Huckell 1996:345). The Cienega phase, in contrast to the earlier San Pedro phase, is characterized by round, rather than oval, pithouses; distinctive projectile points with deep diagonal corner-notching (Cienega points); and a more diverse ground stone artifact assemblage (Huckell 1996:345; Stevens and Sliva 2002:300). Dates proposed for this phase are ca. 800 B.C.–A.D. 150 (Gregory 2001).

Formative Period (A.D. 1–1450)

The Formative period is differentiated from the Archaic period by the addition of pottery to the material culture repertoire. The Formative period in southern and central Arizona is typically considered synchronous with the tenure of the Hohokam culture; however, this may not be the case (see Deaver and Ciolek-Torrello 1995; DiPeso 1956). Two different explanations of this

portion of prehistory are available. The first is the Hohokam cultural chronology, which has been the standard for most archaeologists. The second is an alternative explanation that divorces itself from the developmental dynamics of a specific culture area by, instead, linking its divisions to cultural processes, trends, and events that occurred synchronously across a broad area.

The Hohokam culture is segmented into a sequence of four cultural periods. From oldest to youngest, these are the Pioneer, Colonial, Sedentary, and Classic periods (Gladwin 1965; Haury 1976, 1978). In their original formulation, these periods represent the thesis that the Hohokam culture derives from Mesoamerican immigrants who "pioneered" a new way of life in the Gila and Salt River Valleys of Arizona. After a few centuries of development, the descendants of the original immigrants "colonized" most of the adjoining river valleys of central and southern Arizona using their sophisticated technological, social, political, and religious systems. Once in place, the Hohokam colonists became "sedentary" agriculturalists. In a few centuries, the Hohokam culture reached its zenith, or "classic" cultural development.

The Hohokam cultural sequence was formulated on the notion that the valleys radiating outward from the Gila and Salt Rivers were uninhabited or that the bottomlands were unused by the indigenous Archaic peoples (Haury 1976). An alternative model for southern Arizona was formulated by DiPeso (1956), who postulated that the river valleys were already inhabited by agricultural peoples whom he referred to as the O'otam. In DiPeso's scenario, the O'otam were subjugated by the Hohokam, but after a few centuries freed themselves from Hohokam oppression.

Two theories on the origins of the Hohokam culture dominate the literature: first, that it derived from immigrants who ascended to dominance because of their impressive technologies and scale of cultural development; and second, that it derived from an in-place development from the preceding Late Archaic culture whose Mesoamerican overtones resulted from the transmission of knowledge and ideas across vast regions. Recent archaeological evidence provides resounding proof that the river valleys of central and southern Arizona were inhabited and farmed during the Late Archaic period by relatively substantial populations of indigenous peoples endowed with technologies and a scale of cultural development more impressive than previously accepted.

This new evidence also reveals that over a very large area, the first pottery-making peoples shared similar subsistence technologies, architectural forms, tool assemblages, mortuary customs, and other cultural traits (Deaver and Ciolek-Torrello 1995). These shared similarities encompass the regions that are conventionally recognized as the Hohokam, Mogollon, and Ancestral Pueblo (formerly known as the Anasazi) culture areas.

The alternative to the Hohokam cultural sequence, one which considers recent archaeological evidence, is a tripartite division of the Formative period into three smaller periods referred to simply as Early, Middle, and Late. This three-part division of the Formative period closely corresponds to DiPeso's (1956) outline of prehistory. The Early-Middle-Late divisions also

thematically correspond to DiPeso's outline, which recognizes the Hohokam culture as a major influence in the prehistory of central and southern Arizona. The Early, Middle, and Late Formative periods are equivalent to DiPeso's Formative O'otam, Hohokam Intrusion, and O'otam Reassertion periods, respectively. Put quite simply, the Early-Middle-Late divisions represent the time before the Hohokam, the time of the Hohokam, and the time after the Hohokam (Deaver and Van West 2001:20–24).

The three Formative periods also generally correspond to the Hohokam cultural sequence (Gladwin et al. 1937; Haury 1978). The Early Formative period encompasses the Pioneer period through the end of the Sweetwater phase. The Middle Formative period begins with the Snaketown phase of the Pioneer period and covers the Colonial and Sedentary periods. The Late Formative period corresponds to the Classic period. The slight mismatch in the two sequences results from looking at Hohokam prehistory from the so-called Hohokam peripheries: the Papaguería, the Tucson Basin, the upper and lower Santa Cruz River Valleys, the Gila Bend region, the San Pedro River Valley, the Safford Basin, southeastern Arizona, and the Tonto Basin.

The cultural traditions in these peripheries were affected by far-reaching cultural, environmental, and cosmological phenomena. These phenomena provided a similar structure and rhythm to the prehistoric traditions seen in all the regions. However, the cultural expressions and trajectories of each of these peripheries were singularly unique. It was the responses by the indigenous peoples to these far-reaching phenomena that gave rise to unique local culture histories.

Early Formative Period (A.D. 1–700)

Trends set in motion during the 1,500 years spanned by the Late Archaic period continued uninterrupted well into the first millennium A.D. Early Formative period peoples continued along the course toward reliance on agriculture, sedentary village life, and refinement in adaptive strategies that eventually led to the emergence of the regional cultural traditions recognizable as the Hohokam, Mogollon, and Ancestral Pueblo (Deaver and Ciolek-Torrello 1995).

Similarities in settlement locations and flaked and ground stone industries, and the practice of a mixed agriculture and foraging subsistence strategy revealed by previous and modern archaeological findings support the thesis of continuity between the Late Archaic cultures and the formative, pottery-making, sedentary agricultural cultures across the southern Southwest (Bowen 1972; Cable and Doyel 1987; Ciolek-Torrello 1998; DiPeso 1956; Elson and Lindeman 1994; Gilman 1995; Haury 1957, 1986; McGuire and Villalpando 1993; Roth 1996; Sayles 1945; Wallace et al. 1995). The Early Formative period was not, however, simply the Late Archaic with pottery. The adoption of a pottery technology, the eventual elaboration in the forms and uses of pottery, the construction of more formal and larger houses, the shift from circular to rectangular floor plans, and the building of more permanent and enduring settlements were indicative of a new configuration in economic and social organization (Ciolek-Torrello 1998:254).

The addition of pottery containers to the Early Formative period material repertoire was one of the first new technological innovations. Three pottery horizons that serve as chronological markers are recognized for the Southwest during this period: the Plain Ware horizon (A.D. 1–400); the Red Ware horizon (A.D. 400–650); and the Broadline horizon (A.D. 650–700) (Deaver 1989a, 1989b, 1998; Deaver and Ciolek-Torrello 1995). The broad trends in pottery development from plain wares to red wares to broad-line-painted wares provide a convenient tool for monitoring cultural developments and recognizing differences among groups in various regions.

Middle Formative Period (A.D. 700–1150)

The trend toward agriculturally dependent sedentary societies was essentially complete across most of southern Arizona by the Middle Formative period. Settlements were located in two general zones: along the rivers and the mountain fronts. Agricultural products were clearly the mainstay of the subsistence economy—principally the triumvirate of maize, beans, and squash—but foraging for native foods and the hunting of small and large mammals remained an important aspect of the subsistence regime. Despite similarities in the general pattern, local and regional variations still existed. The repertoire of food-producing and food-gathering techniques was sufficiently diverse and the level of social organization sufficiently well developed to allow groups to adapt to a variety of environments.

The defining theme of the Middle Formative period is the rise and fall of the Hohokam as a regionally influential force, one that would alter the flow of prehistory over much of southern Arizona. Sometime during the Early Formative period, along the middle Gila River between its confluence with the Salt River and the modern town of Florence, there was a group of people whose descendants would come to exert considerable influence over much of southern Arizona: the Hohokam. To some extent, this culture touched the lives of peoples across most of the greater Southwest, including portions of northern Mexico. The Middle Formative period corresponds generally to DiPeso's (1956, 1979) Hohokam Intrusion period for southern Arizona and to the late Pioneer, Colonial, and Sedentary periods of the Hohokam chronology (Gladwin et al. 1937; Haury 1976).

Hohokam is an agrarian culture defined by a unique set of cultural characteristics. They occupied the lower Sonoran Desert and grew corn, beans, squash, and cotton. The people practiced a variety of agricultural techniques, but are most famous for the extensive irrigation systems along the middle Gila River and the lower Salt River of the Phoenix Basin. They made a distinctive red-on-buff pottery and a plain ware with a unique micaceous sheen. They lived in brush-and-earth structures constructed in shallow pits, usually arranged in courtyards. They practiced a cremation death ritual that often included the burning and breaking of funerary offerings. They were artisans who manufactured shell jewelry, turquoise mosaics, slate palettes, pyrite mirrors, clay figurines, and distinctive serrated points. They are also well known for their naturalistic depictions of animals and people in a variety of media, including pottery, shell, and stone. They

practiced ceremonies that involved the use of structures referred to as ballcourts and elevated mounds. Many characteristics of the Colonial period seem to have occurred without earlier precedents, leading to the inference that an infusion of new traits and characteristics took place at the beginning of this period.

The Hohokam culture area covers most of southern and central Arizona. Conventionally, this area of influence is perceived as a cultural core with peripheries. The core area is the only place with the complete complement of Hohokam cultural traits. The explanation has been offered that the Hohokam culture was composed of a network of interconnected and interrelated settlement systems. Current archaeological evidence indicates that the various settlement systems that comprise the Hohokam regional system developed in place over a millennium or more prior to the emergence of a distinctive Hohokam culture.

The middle San Pedro region is located between the traditionally defined peripheries of the Hohokam and Mogollon cultural regions. During the Middle Formative period in the San Pedro River Valley and adjacent areas, the Dragoon culture emerged, an apparent variation of the San Simon Branch of the Mogollon (Heckman 2000:43–62), the prehistoric people inhabiting the mountainous regions of central Arizona and west-central and southwestern New Mexico (Reid and Whittlesey 1997). This variation is considered the result of a strong Hohokam influence on the San Simon peoples inhabiting the middle and upper San Pedro River Valley between A.D. 700–1100 (Heckman 2000:43–45; Vanderpot and Altschul 2007:61–62; Whittlesey et al. 1994:65–82). Archaeologists have proposed a temporal sequence for the Dragoon culture which, like the San Simon, was formulated relatively early in the history of southwestern archaeology and remains tentative pending additional work in the San Pedro River Valley.

The term *Dragoon* was introduced by William S. Fulton in 1934 (Fulton 1934) to describe pottery recovered from excavations in Texas Canyon. In 1940, the term was used again by Fulton and Carr Tuthill to describe the pottery—and the culture that produced it—at the Gleeson site (Fulton and Tuthill 1940). Tuthill later refined the phase sequence based on excavations at AZ BB:15:1(ASM), the Tres Alamos site (Tuthill 1947), and postulated two phases for the Dragoon culture: the Cascabel and Tres Alamos phases. Dragoon Red Ware and Cascabel Red-on-brown Ware were the characteristic local ceramic types during the Cascabel phase and Tres Alamos Red-on-brown Ware appeared during the Tres Alamos phase (Heckman 2000:45). The Cascabel and Tres Alamos were succeeded by the Tanque Verde and Tucson phases, the Tucson Basin Classic period phases (referred to as the Late Formative in the present work). According to Tuthill's findings, Dragoon pottery was not found in the strata at Tres Alamos dating to this time, but Tanque Verde Red-on-brown and Gila Polychrome were present.

In southeastern Arizona, "mixed" Hohokam and Mogollon cultural traits may indicate a similar amalgam of several distinct cultures. Alternatively, the sequential occupation or co-residence of diverse cultural groups is another distinct possibility, as suggested by the mixed ceramic assemblages, Mogollon- and Hohokam-style pithouses, and inhumations and cremations at sites

such as Second Canyon Ruin (Whittlesey and Heckman 2000:10). At Tres Alamos, a similar co-occurrence of traits was observed by Tuthill; for example, Mogollon San Francisco Red Ware and Rincon Red-on-brown Ware are present alongside the local Dragoon Tres Alamos Red-on-brown Ware during the Tres Alamos phase (Heckman 2000:45).

Farther to the north, the people of the lower San Pedro River Valley appear to have followed a settlement pattern paralleling that of the Tucson Basin, with a florescence of villages accompanied by ballcourts during the Colonial period (and to a lesser extent during the Pioneer period); contraction and reorganization of the village system during the middle Sedentary period; and general abandonment around the end of the Sedentary and the beginning of the Classic period (Gregory 1991:175).

In the latter portion of the Middle Formative period, the supreme influence of the Hohokam cultural system on populations in southern Arizona diminished. This can be documented in the material culture, architecture, and settlement patterns. For example, the importation of red-on-buff painted pottery from the Gila River to outlying areas slowed dramatically around A.D. 950 (Wilcox 1987). In its place, a number of local ceramic series evolved that imperfectly emulated Hohokam Sedentary-style decorations, but were clearly produced from local clays with a non-Hohokam technology (Deaver 1989b; Wallace 1986). Across southern Arizona, ballcourts were largely abandoned as integrative features of the community by about A.D. 1000 and widespread shifts in settlement location and configuration occurred (Ferg et al. 1984). In short, the changes of the post-A.D. 950 period are sufficiently dramatic to suggest that populations of southern Arizona again functioned as independent political and economic systems sometime after the middle of the tenth century A.D.

Late Formative Period (A.D. 1150–1450)

After the decline of Hohokam influence across southern Arizona, another series of sweeping regional changes occurred. In southern and central Arizona, these changes signaled the advent of the Late Formative period, a time of distinctive forms of architecture and settlement, styles of painted pottery, and patterns of interaction. Influence was no longer peddled from the Hohokam core area but, rather, now flowed from northeast to southwest. This was a time of migration, with peoples from the Kayenta region of the Colorado Plateau moving southward into east-central Arizona (Woodson 1999, 2006). It was also a time when Paquimé (Casas Grandes) in Chihuahua, Mexico, emerged as a center of regional influence (DiPeso 1974). But numerous local centers developed, too, probably as part of a natural reorganization of people in response to the vacuum left by the Gila River Hohokam. Local systems flourished at the expense of regional systems, and within localities, districts were abandoned and new communities and community centers emerged. Influential local systems existed in northern Mexico, in the middle and lower San Pedro River Valleys, in the Papaguería, and in the Tucson Basin. The development of new sociopolitical and economic relationships is inferred from the pattern of indigenous and exotic ceramics in archaeological assemblages. In the Tucson Basin,

for example, Tanque Verde Red-on-brown was produced with a vigor not reflected by its Gila Basin counterpart, Casa Grande Red-on-buff. Similarly, to the east in the Safford region, San Carlos Red-on-brown (a stylistic homologue of Tanque Verde Red-on-brown) was also produced with a vigor unmatched in the Gila Basin. In addition, the influx of pottery from the San Pedro River Valley, the Tonto Basin, and the Cibola region (Wallace and Holmlund 1984) suggests that a more sustained interaction with peoples to the southeast and northeast was taking place. Eventually, a new style of pottery, the so-called Salado polychromes, appeared in east-central Arizona, eventually spreading over most of central and southeastern Arizona.

It is evident that late in the Formative period, a new way of life that had many of the physical manifestations of puebloan culture appeared across most of southern Arizona. The mechanisms that promoted the spread of this culture appear to have involved the southerly and southwesterly migrations of puebloan peoples from the southern margins of the Colorado Plateau as well as the adoption of puebloan-like characteristics by indigenous populations. This interaction may not have been amicable and warfare may have been common.

The Late Formative period ends sometime around A.D. 1450 with the disappearance of the Late Formative period cultures in southern Arizona from the landscape and the abandonment of the major Formative period settlements in the Salt and Gila River Valleys, in the Tucson Basin, and in the rest of southern Arizona. Various competing theories have arisen to explain this cultural change. With regard to the Hohokam culture area to the north along the Salt and Gila Rivers, soil salinization as a result of intensive irrigation with alkaline water, water-borne diseases spread through canal systems, overpopulation leading to resource depletion, social and political reconfiguration, raiding and warfare, internal strife, climatic change in the form of floods and droughts, or some combination of these have all been proposed (e.g., Abbott 2003; Ackerly 1982; Andrews and Bostwick 1997). With regard to the other areas of southern Arizona that were not dependent on a similar level of social organization or on extensive networks of irrigation canals, other factors may have been at work. These factors remain as theories and are largely speculative. Little hard evidence is available to reveal what happened at the end of the Formative period. What is clear is that when the Spanish first entered the southwestern United States less than a century later, the large Late Formative period settlements across southern Arizona were long abandoned and the history of these prehistoric cultures had already passed into the folklore of the native peoples that the Spanish encountered.

Protohistoric Period (A.D. 1450–1691)

The Protohistoric period—an obscure period in the history of the Southwest—falls between the Late Formative period and the arrival of the Spanish missionaries. This period is not well represented in the archaeological record, yet early Spanish explorers documented their encounters with people who were well established in some areas of the Southwest. The discussion of this period is based on historical accounts of newly arriving Europeans, linguistic relationships among indigenous peoples, and native oral traditions.

Spanish exploration of the Southwest began as early as 1539 with the preliminary scouting expedition of Fray Marcos de Niza, who had been sent to the region by Mexican viceroy Antonio de Mendoza in response to the accounts of Alvar Núñez Cabeza de Vaca and Moroccan slave Estevan. Cabeza de Vaca and Estevan had wandered to Sonora after being shipwrecked in the Gulf of Mexico in 1528. After de Niza returned, Viceroy Mendoza proposed a larger expedition and selected Vásquez de Coronado as its leader. Coronado's party departed in 1540 in search of the fabled Seven Cities of Cibola. The route of the expedition probably took Coronado through what is now eastern Arizona, although it has been speculated that one stop on the journey, Chichilticale or "Red House," was in fact the Hohokam adobe house at Casa Grande. A preliminary scouting party led by Melchior Diaz had preceded Coronado and journeyed up the San Pedro River, exploring the area around the Gila-San Pedro confluence to the "east and west." The exact extent of this survey is unknown, however (Wilson 1999:25–26).

Who were the native peoples encountered by the Spanish? One thought is that the people living in southern Arizona were the direct descendants of the prehistoric peoples whose numbers and culture had been reduced by the social and economic changes that marked the end of the Formative period. Another is that they were Piman-speaking peoples who had moved into the area after the collapse of the prehistoric cultural traditions. They may not have found the region to be completely abandoned and, perhaps, were integrated with the descendants of the prehistoric cultures, a possibility suggested by oral tradition (Teague 1993:444).

Around A.D. 1500 or earlier, bands of Athabaskan-speaking groups with a linguistic affinity to native peoples in Alaska, Canada, and northern California began arriving in the region of the southern Colorado Plateau and the mountainous region below the Mogollon Rim (Stein 1994:10–11; Whittlesey 2003:243). The exact route and timing of the Athabaskan migration into the Southwest has not been fully resolved, but most scholars agree that it occurred late in prehistory (Whittlesey 2003). Soon after their arrival in the Southwest, the Navajo and the Apache separated as distinct cultural groups (Whittlesey 2003:243). The Apache settled in the mountainous regions of the greater Southwest while the Navajo settled around the Four Corners area. The Apache moved into upland areas that contained no large populations of other native peoples and that had apparently been unpopulated since the exit of the Mogollon, Salado, and Hohokam cultures from the Mountain Transition Zone late in prehistory (Whittlesey 2003:242). The Apache are composed of six major tribes: the Jicarilla, Lipan, Mescalero, Chiricahua, Kiowa-Apache, and Western Apache (Goodwin and Basso 1971:12). The Western Apache territory was vast, encompassing much of the mountainous region of south central Arizona (Whittlesey 2003). The homeland of the Central Chiricahua Apache was southeastern Arizona, centered in the Dragoon, Dos Cabezas, and Chiricahua Mountains, but also ranging north to the Gila River, south to the Sierra Madre, and east into southwestern New Mexico (Sweeney 1991).

Apache territory was ecologically varied, with high mountain peaks, desert areas, and lush river valleys. Apache bands practiced a hunting-and-gathering subsistence strategy supplemented by limited horticulture. Wild plant foods collected by Apache groups in the upland areas included

acorns from the Emory oak, juniper berries, and the hearts of agave (Goodwin 1942). Large game, wild fowl, and rodents were hunted (Goodwin 1942). According to Goodwin (1937:61), agricultural products made up only 25 percent of the yearly diet, the remainder being a combination of undomesticated plants, game animals, and stolen livestock. Raiding activities constituted an important part of Apache culture. The Apache would periodically raid Mexican, Anglo, Pima, Maricopa, Navajo, and Papago settlements (Goodwin and Basso 1971). Because of this dependence on raiding, conflicts between Apache groups, native agricultural peoples, and Europeans would continue through the Spanish, Mexican, and American periods until Apache suppression by the U.S. Army in the 1870s. The Apache conflict in the region would end for good in 1886 when Geronimo and the Chiricahua Apache surrendered to the U.S. Army at Skeleton Canyon near Apache, Arizona.

Apache social organization was based on small mobile groups exempt from an overall political authority (Goodwin 1942). These local groups, connected by kinship and social and economic ties, would generally include four to five households or *gowas* (Apachean brush structures also known as *wickiups*) (Goodwin 1942). These local groups were part of a larger clan that regulated social relationships and obligations (Goodwin 1942). The clans, as with the rest of Apache society, were matrilineal.

Apache material culture, as would be expected from a highly mobile people, was based on expedient, easily transported containers and tools made of basketry, wood, and fibers (Whittlesey 2003:247). The Apache also produced an unrefined pottery and scavenged and reused tools from prehistoric sites (Whittlesey 2003:247).

EUROAMERICAN OCCUPATION OF SOUTHEASTERN ARIZONA

Historic Period (A.D. 1691–1950)

The Historic period begins in 1691 with the establishment of the mission system in the Santa Cruz River Valley following the arrival of Jesuit missionary Eusebio Kino. Kino made his first forays into the valley in 1691 (to Tumacácori) and 1692 (to San Xavier del Bac) (Wilson 1999:12–13). After a poorly documented visit to the Casa Grande area in 1694, Kino made a second *entrada* to the area in 1697 (Wilson 1999:24). Setting out from the Nuestra Señora de Dolores mission, Kino traveled north along the San Pedro River and then followed the Gila River to the west, arriving at Casa Grande on November 18, 1697. He was accompanied by Captain Juan Mateo Manje and approximately 20 soldiers and native guides. Manje, unlike Kino, kept well-written journals of his travels. The chronicle of this expedition makes note of small groups of people living along the San Pedro River, identified as the Sobaipuri (Doelle and Wallace 1990; Masse 1981), and also mentions many abandoned villages along the river corridor. These were most likely recently abandoned Sobaipuri villages, although he may have included prehistoric sites as well (Masse 1980). The chronicle also notes "six or seven" Piman *rancherías* along the Gila River in the area around Casa Grande. This appears to be the first known reference to the Pima by Europeans (Debowski et al. 1976:30).

The missionaries identified the groups of people inhabiting southern Arizona and northern Sonora as Upper and Lower Pimans, or *Pimas Altos* and *Pimas Bajos*. The *Pimas Altos*, or the people inhabiting the *Pimería Alta* (which includes the Santa Cruz and Gila Rivers as well as the adjacent desert regions), were described by the Spanish missionaries as consisting of four broad groups: the Pimas, inhabiting the southeastern portion of the *Pimería Alta*; the Papabotas, inhabiting the desert areas and later known as the Papagos (and today as the Tohono O'odham); the Sobas, supposed followers of a man named Soba in the southwestern *Pimería Alta* (and unlikely a distinct cultural entity); and the Sobaipuris, inhabitants of the northern and northeastern areas, or the San Pedro and Santa Cruz River Valleys (Spicer 1962:119, 126–128; Wilson 1999:20). The subsistence strategies practiced by these native peoples included the procurement of wild resources (with melons and bighorn sheep being particularly important sources of food) and floodwater farming. It appears uncertain if irrigated agriculture was being used at this time (as it had been during the Hohokam era), although a 1699 account by Captain Manje states that the Pima did not make use of canals to irrigate their crops and relied upon floodwater (Wilson 1999:38). However, people in the San Pedro River Valley are mentioned obliquely by Kino during an earlier visit as cultivating cotton by irrigated agriculture.

Owing to the work of "Padre" Kino, missionary efforts in the *Pimería Alta* continued into the early eighteenth century. After Kino's death in 1711, however, the mission system in Sonora began to deteriorate, partly the result of neglect while Spain was distracted by the War of the Spanish Succession (Walker and Bufkin 1979:14). By 1750, most of the people occupying the San Pedro River Valley had been forced to move to the Santa Cruz and Altar Valleys due to Apache raiding. This turned out to be only a temporary solution, as the Apache began raiding these locations as well. In 1762, the remaining Sobaipuri populations were moved out of the San Pedro River Valley to replace Pima who had succumbed to disease at the Guevavi Mission in the Santa Cruz River Valley. These people either died or were absorbed into the Pima populace, thus ending the existence of the Sobaipuri as a distinct cultural group (Walker and Bufkin 1979:12).

Incursions by the Apache continued unabated. Beginning around 1790, as a means of bringing raiding to a halt, the Apache were provided with supplies, an action by the Spanish government that allowed for the expansion of ranching and stock raising in what would eventually become southern Arizona. This time of relative peace ended with the independence of Mexico from Spain in 1821. With Spanish support no longer available, ranching became unviable as the Apache once again began their raiding activities (Morrisey 1950:151).

Between 1827 and 1846 (the beginning of the Mexican-American War), Anglo-Americans began to establish a substantial presence in the middle Gila River region. The first Americans to enter the area appear to have been Sylvester and James Ohio Pattie, father and son beaver trappers who made several trapping excursions along the San Pedro, Gila, and Colorado Rivers during the years 1825 and 1826 (Walker and Bufkin 1979:17). In 1846, Colonel Stephen Watts Kearny, who had been charged with establishing American control of California and the Southwest

during the war, followed the Gila River west toward California after securing New Mexico. Along the way, he met Lieutenant Christopher "Kit" Carson, who informed him that the war in California was essentially over. Kearny continued westward with a small contingent of men, sending the rest back to New Mexico. Kearny followed the river, passing by the Pima villages. When he reached California, he found that Carson had exaggerated and that the hostilities there were not quite at an end. Nevertheless, his trip had not been wasted as it provided the opportunity for the first reliable mapping of the Gila River. Also in 1846, a group of Mormon soldiers led by Philip St. George Cooke blazed a trail across Arizona, leaving a detailed record of the area at that time.

The Treaty of Guadalupe Hidalgo ended the Mexican-American War in 1848 and established the Gila River as the Mexican-American border from the western boundary of New Mexico to the confluence of the Gila and Colorado Rivers. Following the discovery of gold in California in 1849, the Gila Trail—as the route established along the Gila River by Kearny had come to be known—became a major thoroughfare for would-be gold miners on their way to California.

In 1853, the Gadsden Purchase expanded Arizona from the Gila River south to the present-day Mexican border. Although the lands included in the Gadsden Purchase had already been used for ranching, Arizona's ranges were now open for ranching activities on a large scale. The increase in population in California since 1849 had resulted in a significant beef market, and Arizona became a thoroughfare for cattle being driven from Texas to California. Within Arizona itself, military garrisons and a growing mining industry also provided a need for beef (Morrisey 1950:151–152). The American military arrived in Tucson in 1856.

The Dragoon Mountains were named for the 3rd U.S. Cavalry, known as Dragoons, who were stationed in the mountains during the 1850s (Trimble 1986). The Dragoon Mountains provided an ideal hiding place for the Apache chief Cochise and his warriors during the raiding forays of the mid- to late 1800s, and the Dragoons were sent to rid the Arizona Territory of the Apache threat. Cochise, who died of natural causes in 1874, was buried in Cochise Stronghold in the Dragoon Mountains.

The Butterfield Overland Stage had a station at the northern end of the Dragoon range in 1858, at what was called Dragoon Springs. The town of Dragoon lies roughly 2 miles north of the old station. In 1863, the Arizona Territory was established after successful lobbying by Charles D. Poston. One year before, in 1862, the National Homestead Act offered land tracts of 160 acres at $1.25 per acre or 80 acres at $2.50 per acre for land within a railroad grant (Stein 1990:4). This began a series of homesteading acts that eventually led to the Stock-Raising Homestead Act of 1916, which sparked a boom in homesteading in Arizona that lasted between 1910 and 1940 (Stein 1990). Ranching and cattle raising in southern Arizona were closely associated with homesteading.

The railroad arrived in the early 1880s, bringing with it an economic and social connection to the rest of the United States. Several months before the Southern Pacific Railroad reached

Tucson in 1880, speculators laid out a townsite on Cochise Pass, the highest point on the railroad as it crossed Arizona (Myrick 1975). This townsite was named Dragoon City, and Cochise Pass soon became Dragoon Summit or Dragoon Pass, and eventually just Dragoon. Interest in the Cochise (Johnson) Mining District several miles to the north began around the same time following mineral discoveries in 1879 by several individuals who located claims around Cottonwood Creek. The individual claims were transferred to several mining companies: the Dragoon Gold and Silver Mining Co., the Rex Gold and Silver Mining Co., and the Russell Gold and Silver Mining Co.

In 1883, Dragoon was the place where Montgomery & Benson's Stage met the Southern Pacific trains for passengers heading to nearby Russellville and Johnson, newly established towns in locations of lucrative claims (Myrick 1975). It was a "rather diminutive" settlement, consisting of section houses, a railroad ticket office, and a saloon (Myrick 1975:334). Declining copper prices and increased production costs caused the copper industry to languish until the turn of the century, when the demand for electricity led to an increased demand for copper. The Johnson, Dragoon, and Northern Railroad was completed in 1909, connecting the Southern Pacific from Dragoon to Johnson. The railroad was meant to stimulate mining activity in Johnson, which it did until it was absorbed by the Southern Pacific in 1911. The railroad was abandoned in 1925.

The stock market crash on Black Tuesday, October 29, 1929, ushered in the Great Depression and a world-wide economic downturn. This decline in the industrial economy coincided with extensive droughts in many parts of the United States, including Arizona, in the 1930s (Collins 1999:201). Decades of poor farming techniques and land mismanagement exacerbated by severe droughts culminated in extensive soil erosion and loss of fertility. In order to conserve the land and provide financial relief across the country, the Roosevelt Administration initiated various federal New Deal projects designed to stimulate the economy and restore America's natural resources (Collins 1999). The Soil Erosion Service, later the Soil Conservation Service, selected the upper Gila River in Arizona and New Mexico as a demonstration project to protect Coolidge Dam and the San Carlos Irrigation Project from filling with silt (Collins 1999:201–202). The demonstration area covered approximately 8.2 million acres, most of which were in Arizona. Two general measures were taken to correct the existing conditions: revegetation of the drainage areas and the construction of artificial water-control features such as checkdams and dikes (Collins 1999:222). The project began in December 1933 and employed 1,036 men from the Civil Works Administration and another thousand workers from the Federal Emergency Relief Act (Collins 1999:222). This labor force was insufficient to complete the project before the termination of the Civil Works Administration program in March 1934. The Soil Conservation Service then turned to the Civilian Conservation Corps (CCC) to fill the labor void and successfully secured labor under the Drought Relief Program from two camps in New Mexico and one in Arizona (Collins 1999:222). Approximately 200 Arizonans and Texans housed at the CCC camp near Duncan began work reseeding the range, building and repairing stock tanks, constructing rock and wire checkdams, strengthening stream embankments, and

scooping water holes (Collins 1999:222). The Soil Conservation Service (SCS) later managed more CCC work camps in Arizona, in Pima, Santa Cruz, Maricopa, Yavapai, Apache, and Cochise Counties (Collins 1999:222–223). In the San Pedro River Valley, an SCS-CCC work camp was established at St. David in southeastern Arizona, where CCC workers labored mostly on private ranches which were then maintained by the landowners (Collins 1999:223). Many of the features built by the Civil Works Administration, Federal Emergency Relief Act, and CCC workers are still present on the landscape today (Seymour et al. 1997). Ranching remains an important economic activity throughout much of southeastern Arizona.

SURVEY METHODS

WestLand's field methodology for the survey area was influenced by the nature of the expected archaeological resources and the character of the landscape. A pedestrian archaeological survey was conducted within the survey area using standard field survey procedures. One crew member walked a series of north-south- and east-west-oriented parallel transects spaced 20 m apart in order to look for surface evidence of cultural resources. Topographic maps, a surveying compass, and a global positioning system (GPS) unit were used to ensure complete coverage. The locations and acreages of the lands proposed for the project are indicated in **Table 1** and represent a consolidation of three previous survey projects (King 2014; Stephen 2010a and 2010b) and the current survey by WestLand of 17.7 acres (this report).

Table 1. Project location and acreage surveyed

Land Jurisdiction	Legal Description (T, R, S)	Total Acres	Acres Surveyed	Acres Not Surveyed	Acres Dropped from Survey Area
Arizona State Land Department	T15S, R22E, Section 36	66.85	66.85	0	0
Private	T15S, R22E, Section 36; T15S, R23E, Section 31	265.88	265.88	0	0

The initial expectation was that much of the evidence of human use of the area would be found in archaeological artifacts, features, and sites and that these would probably be attributable to Formative period Native American and Historic period Euroamerican land-use patterns. The field methods focused on collecting basic information about individual artifacts, features, and sites, including their age, cultural affiliation, and presumed function. Basic metric data were also recorded.

In addition, the survey methods were influenced by the expectation that sites are often masked or obscured by ongoing modern land use. A review of historical maps and aerial photographs was performed prior to the field survey to help identify Historic period features that might still exist as archaeological sites. Field observations were recorded on standardized forms and later entered into WestLand's Archaeological Information Management System for analysis.

ARIZONA STATE MUSEUM SITE CRITERIA

Evidence of past human activities exists on the landscape in objects, sites, districts, buildings, and structures. The archaeological survey anticipated finding three categories of archaeological resources: (1) artifacts, (2) artifact scatters, and (3) features. The first two categories consist of portable objects left behind on the landscape as a result of various activities. The third is made up of non-portable, purposeful constructions, excavations, and deposits.

The ASM provides guidelines that identify what is minimally considered an archaeological site. Upon initial discovery of an archaeological artifact, artifact scatter, or feature, the archaeologist closely examined that find to determine whether other associated archaeological materials were present. Once fully defined, the ASM guidelines (ASM 1995) were applied to determine whether the archaeological find should be designated and recorded as an archaeological site.

According to the ASM, a site is any:

1. Physical remains of past human activity that are at least 50 years old.

Additionally, sites should consist of at least one of the following:

2. 30+ artifacts of a single class (i.e., 30 sherds, 30 lithics, 30 tin cans) within an area 15 m (50 ft) in diameter, except when all pieces appear to originate from a single source (i.e., one ceramic pot, one core, one glass bottle).
3. 20+ artifacts which include at least 2 classes of artifact types (i.e., sherds, ground stone, nails, glass) within an area 15 m (50 ft) in diameter.
4. One or more archaeological features in temporal association with any number of artifacts.
5. Two or more temporally associated archaeological features without artifacts.

Of note, the 50-year standard for the potential inclusion of a cultural resource in the A/NRHP is a "rolling" date; e.g., a site dating to 1967 could be eligible for inclusion in the A/NRHP in 2017; a site dating to 1980 could be eligible for inclusion in the A/NRHP in 2030, etc. However, remains less than 50 years of age may also be considered for inclusion if they are of "exceptional importance" (Sherfy and Luce 1998:ii).

All resources satisfying these minimum criteria are designated as archaeological sites and recorded as specified in the ASM site recording manual (ASM 1993). Archaeological resources that do not meet these criteria are designated as non-site isolated occurrences.

A provisional policy for the treatment of in-use historical infrastructure has been developed and circulated by the ASM in conjunction with the Arizona State Historic Preservation Office (Arizona SHPO). This policy states:

1. The ASM will not assign site numbers to in-use infrastructure, including, but not necessarily limited to, structures, roads, canals, pipelines, and transmission lines;
2. The ASM will no longer recognize existing site numbers that are assigned to in-use infrastructure;
3. The ASM will not require and will not accept updates for in-use infrastructure that have site numbers; and
4. The ASM will not enter in-use infrastructure data into AZSITE or otherwise track in-use infrastructure.

Isolated Occurrences

This category includes all archaeological resources that are not identified as archaeological sites. The location of each isolated occurrence is recorded with a Trimble GeoExplorer GPS receiver. To the extent possible, each isolated occurrence is categorized into a conventional typological category and attributed to an archaeological culture, chronological period, and activity. Examples include resource procurement, transportation, ranching, and mining.

Isolated occurrences can be individual artifacts, artifact scatters, and features. By definition, these are considered archaeological when they are more than 50 years old. Many artifacts of glass, metal, and synthetic material lack clear diagnostic characteristics to indicate their age. Because these are abundant around modern settlements and in areas frequently visited for hunting, camping, and other forms of recreation, it is impractical to map and record all glass, metal, and synthetic materials. These industrial-age artifacts are identified as archaeological resources only when clear diagnostic evidence establishes that they are over 50 years old. If these artifacts are related to the defined themes of Euroamerican land use, items that can be linked specifically to these activities are mapped and documented at the discretion of the field director in consultation with the principal investigator. Similarly, many individual man-made features whose ages are uncertain are present on the landscape. Some commonly encountered examples include cairns, rock clusters, small rock rings, mining features, ranching features, trails, and roads. Although the age of these features may be ambiguous, they are related to the theme of Euroamerican land use and are mapped and recorded in consultation with the appropriate land management agency. Some of these may be diverse groups of artifacts and features that meet all the ASM criteria for an archaeological site except for the determination of age. Artifacts such as these are identified as isolated occurrences because their age is unknown.

Artifact and Feature Documentation

Data on artifacts and features are consistently collected regardless of whether the artifact or feature is associated with a site or considered an isolated occurrence. Artifacts are described and classified into typological categories based on material, form, and manner of decoration. Artifacts representative of each type are photographed. Glass, metal, and other industrial-made artifacts are similarly classified. Key diagnostic traits are recorded, and any diagnostic markings or embellishments are photographed and transcribed.

Archaeological features are also documented in a consistent manner. Features are classified into quasi-functional categories, described, and measured. Descriptions include notes on the form, composition, material, and construction technique. All features are photographed.

SURVEY FINDINGS

The field surveys covering the project area (the current survey by WestLand of 17.7 acres [this report], King 2014, and Stephen 2010a and 2010b) resulted in the identification of nine isolated occurrences of cultural materials **(Table 2)**. Isolated Occurrences 6 through 9 are located in the survey area.

Table 2. Isolated occurrences

Isolate No.	Description
1	Stacked rock cairn measuring 3 feet in diameter and 1 foot tall; no wooden post
2	Shallow prospect into cobble-rich alluvium with waste materials to east and west; measures 12 feet long by 5 feet wide and 2 feet deep
3	Brick dump. ~25 fired adobe bricks (each 12 × 6 × 4 inches) with a few fragments of galvanized metal and wood; measures 10 × 10 feet.
4	Gray-green rhyolite cortical unifacial tool or "chopper"
5	Collapsed rock cairn measuring 3 feet long by 2 feet wide by 1 foot tall; no wooden post
6	Cluster of four rock piles measuring 6 to 8 feet in diameter and 1 to 2 feet tall. May be related to the construction or maintenance of Interstate 10. A 4-foot length of ½-inch-diameter braided steel cable is partially covered by one of the piles.
7	Mineral survey marker stamped USMS 4197. Welded to top of 2-foot-tall 1½-inch-diameter steel pipe supported by rock pile measuring 3 feet in diameter and 6 inches tall.
8	1 reddish-brown sand-tempered plainware sherd; 1 sand-tempered brownware sherd
9	12- to 15-foot-wide dirt road crossing survey area. Appears to be maintained; extends east and west from the survey area for an indeterminate distance.

RESEARCH SYNTHESIS

Cultural resources inventories of the project area resulted in the identification of nine isolated occurrences of cultural materials. The isolated occurrences represent Native American use and occupation of the landscape during the Formative period (A.D. 1–1450) and historical Euroamerican activities associated with ranching, mining, and road construction activities during the twentieth century.

MANAGEMENT SUMMARY

WestLand was contracted by Excelsior Mining Arizona, Inc., to conduct a cultural resources inventory of the Arizona State Trust and private lands that make up the Gunnison Copper Project project area. The majority of the project area has been previously inventoried for cultural resources (King 2014; Stephen 2010a and 2010b), except for approximately 17.7 acres (the survey area). WestLand surveyed this remaining acreage, and the results of this survey and those of the previous inventories are incorporated herein.

Cultural resources inventories of lands involved in the proposed Gunnison Copper Project resulted in the identification of nine isolated occurrences of cultural materials. The isolated occurrences are recommended ineligible for inclusion in the A/NRHP, and WestLand recommends that no further archaeological work is required prior to the construction of the project as currently defined. WestLand does however provide the general recommendation that all ground-disturbing activities have the potential to unearth human remains and that all such discoveries should be treated in accordance with Arizona Revised Statutes §41-844 and/or §41-865.

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APPENDIX A

ARCHAEOLOGICAL RECORDS SEARCH

Table A.1. Previous archaeological surveys within the project area and survey area and vicinity

Table A.2. Known archaeological sites within the project area and survey area and vicinity

Figure A.1. Previously recorded archaeological sites and projects within 1.6 km (1 mile) of the project area

Class I References

The following information is considered sensitive; may be protected under federal, state, and local laws; and may be removed from the report.

Table A.1. Previous archaeological surveys within the project area and survey area and vicinity

Agency Project No.	Project Name	Reference
1982-82.ASM [1]	Sullivan Mineral Lease Survey	Madsen 1982
1987-222.ASM [2]	U.S. Telecom Buried Fiber Optic Cable	O'Brien 1987
P.A.S.T. 2010 – Private Land [3]	Thing View Survey	Stephen 2010a
P.A.S.T. 2010 – ASLD Land [4]	North Dragoon Basin Survey	Stephen 2010b
1999-82.ASM [5]	ASLD Right-of-way Application 18 104047	Kinkade 1999
2000-826.ASM [6]	AT&T NexGen/Core Project Link 2 Class 3 Survey	Kearns et al. 2001
2001-817.ASM [7]	I-10 Willcox	Davis and Turner 2001
2004-335.ASM [8]	McRae ROW in Texas Canyon	Kinkade 2000a, 2000b
2005-15.ASM [9]	Johnson Camp Mine	Boloyan 2005
2005-302.ASM [10]	AT&T NexGen/Core Project	Baker 2004
2006-497.ASM [11]	Craycroft Rd.-Willcox Signing	Davis et al. 2006
2014-108.ASM [12]	Big Draw R23E Drill Holes	Stephen 2014
AZ410-15-02 [13]	Darling Dragoon 365 Acres	King 2014

Note: The projects **in the project and survey areas** are listed first.

Table A.2. Known archaeological sites within the project area and survey area and vicinity

Site Number (ASM)	Site Type	Age and Cultural Affiliation	Reference	NRHP Eligibility
AZ AA:16:377 [1] [1]	Road (SR 86)	Late Historic, A.D. 1900–1950; Euroamerican	Davis and Turner 2001	Some segments have been determined eligible under Criterion A – SHPO 2001–2009
AZ BB:16:6 [2]	Artifact scatter with features (two-room structure and rock ring)	Prehistoric, 12,000 B.C.–A.D. 1500; Native American Culture	Miller and Weed 1972	
AZ BB:16:23 [3]	Artifact scatter with feature (rock alignment)	Prehistoric, A.D. 200–1300; Native American Culture	Brown 1999	
AZ BB:16:29/ Tungsten Mill [4]	Trash scatter	Late Historic, A.D. 1900–1950; Euroamerican	Kinkade 2000a, 2000b	
AZ BB:16:56 [5]	Homestead	Late Historic, A.D. 1900–1950; Euroamerican	Jones 2008	
AZ BB:16:57/ Johnson Road [6]	Road	Late Historic, A.D. 1900–1950; Euroamerican	Davis et al. 2006	
AZ AA:16:71 [7]	No information in AZSITE	No information in AZSITE	No information in AZSITE	
AZ BB:16:82 [8]	No information in AZSITE	No information in AZSITE	No information in AZSITE	
AZ BB:16:86 [9]	Artifact scatter with features (habitation and agriculture)	Middle Formative, A.D. 950–1100; Native American Culture	King 2014	
AZ BB:16:87 [10]	Features (rock alignments)	Unknown; unknown	King 2014	

Note: There are no sites in the survey area; however, there is one site in the project area (listed first).

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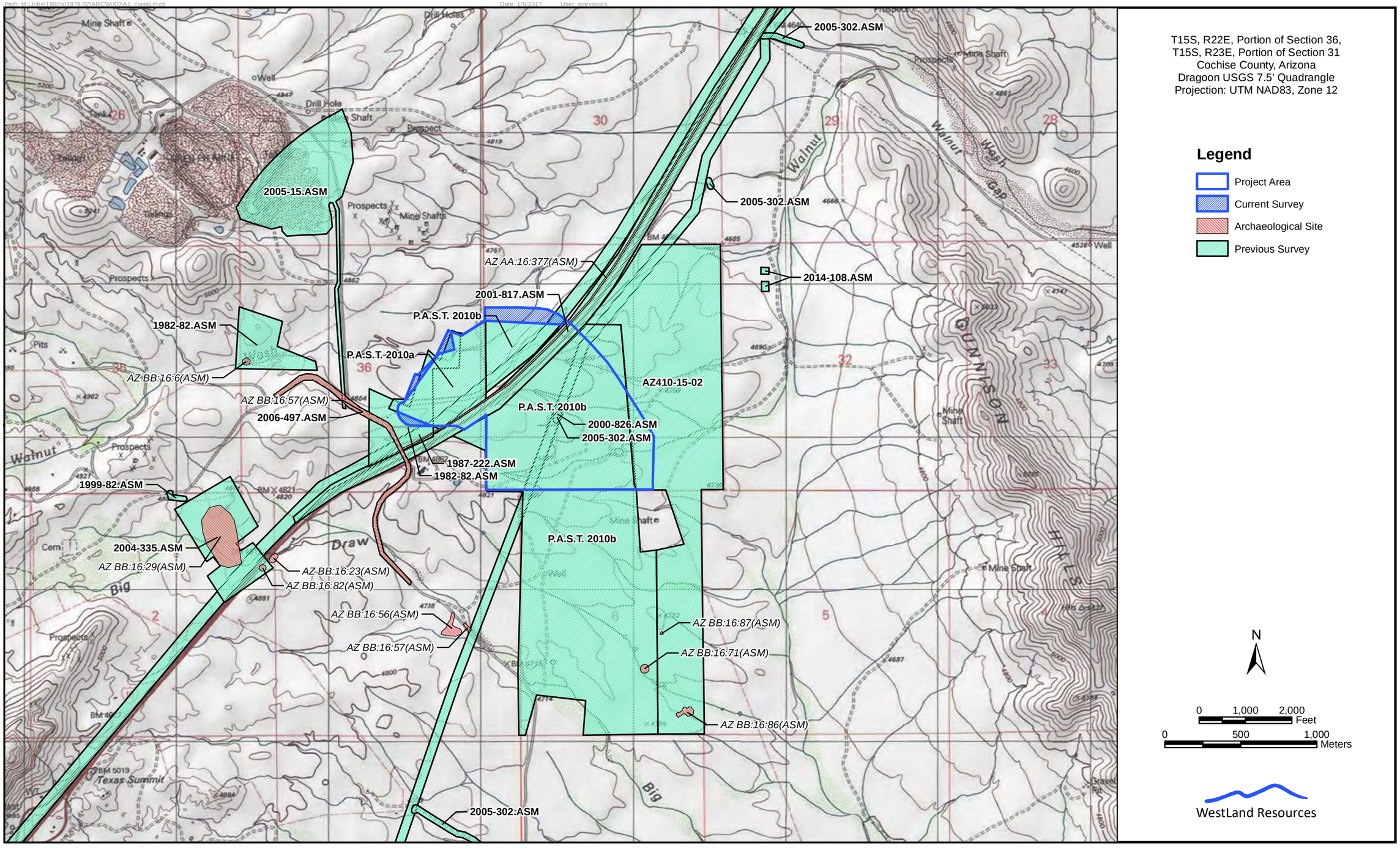

Figure A.1. Previously recorded archaeological sites and projects within 1.6 km (1 mile) of the project area

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APPENDIX B

RESULTS OF ARCHAEOLOGICAL SURVEY

Table B.1. Isolated occurrences

Figure B.1. Results map

The following information is considered sensitive; may be protected under federal, state, and local laws; and may be removed from the report.

Table B.1. Isolated occurrences

IO No.	Field No.	Age/Cultural Affiliation	Description	Location NAD83, Zone 12	
				Northing	Easting
1	38	Historic Euroamerican	Stacked rock cairn measuring 3 feet in diameter and 1 foot tall; no wooden post	3550178	591017
2	39	Historic Euroamerican	Shallow prospect into cobble-rich alluvium with waste materials to east and west. Measures 12 feet long by 5 feet wide and 2 feet deep.	3549661	359039
3	41	Historic/ Modern Euroamerican	Brick dump. ~25 fired adobe bricks (each 12 × 6 × 4 inches) with a few fragments of galvanized metal and wood; measures 10 × 10 feet.	3549942	591136
4	54	Prehistoric Native American	Gray-green rhyolite cortical unifacial tool or "chopper"	3549904	591000
5	55	Historic Euroamerican	Collapsed rock cairn measuring 3 feet long by 2 feet wide by 1 foot tall; no wooden post	3549960	590997
6	1	Historic Euroamerican	Cluster of four rock piles measuring 6 to 8 feet in diameter and 1 to 2 feet tall. May be related to construction or maintenance of Interstate 10. A 4-foot length of ½-inch-diameter braided steel cable is partially covered by one of the piles.	3550790	590502
7	2	Historic Euroamerican	Mineral survey marker stamped USMS 4197. Welded to top of 2-foot-tall 1½-inch-diameter steel pipe supported by rock pile measuring 3 feet in diameter and 6 inches tall.	3550760	590030
8	3	Prehistoric Native American	1 reddish-brown sand-tempered plainware sherd; 1 sand-tempered brownware sherd	3550428	589627
9	4	Historic Euroamerican	12- to 15-foot-wide dirt road crossing survey area. Appears to be maintained; extends east and west from the survey area for an indeterminate distance.	3550414	589789

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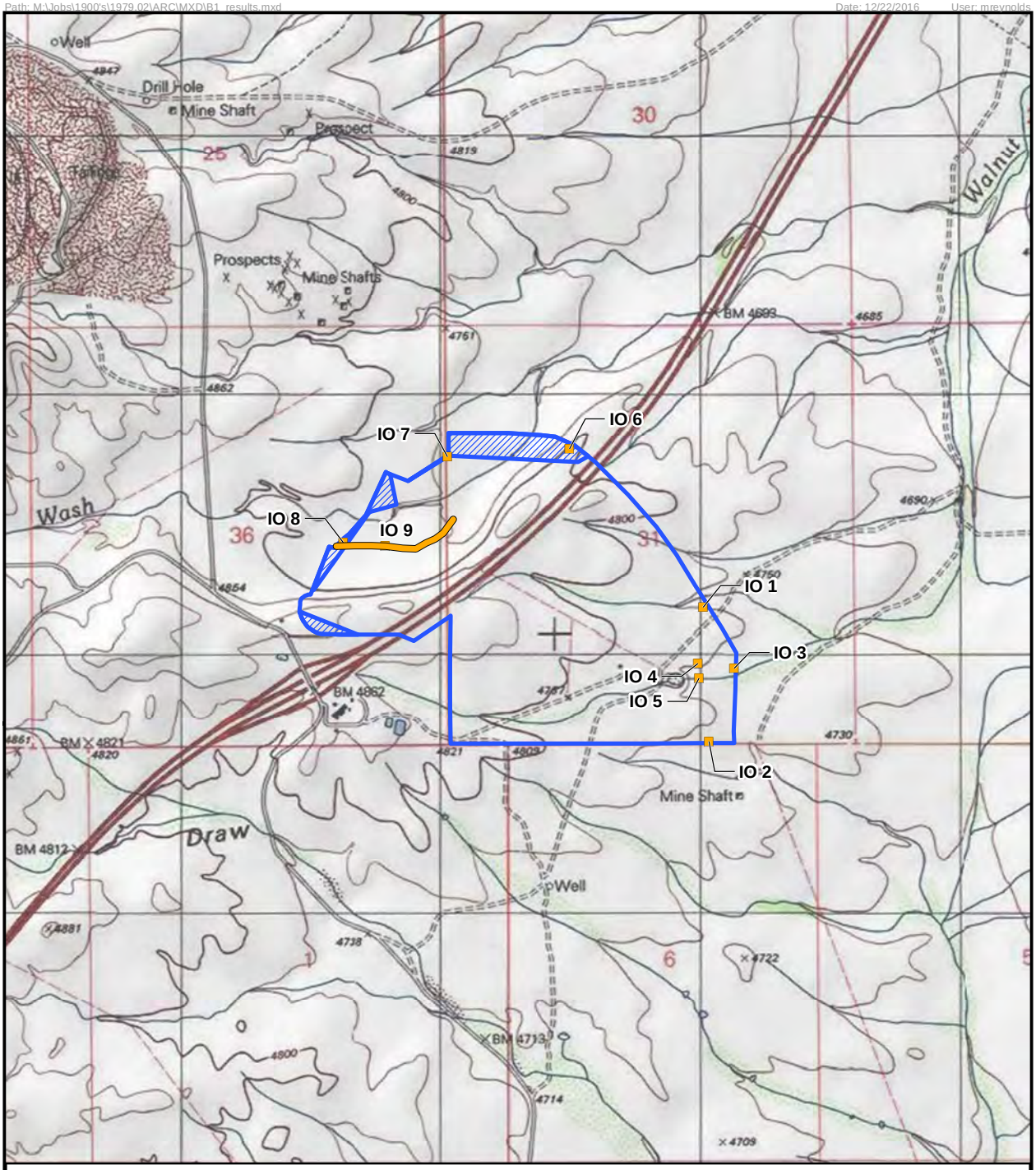

T15S, R22E, Portion of Section 36,
T15S, R23E, Portion of Section 31
Cochise County, Arizona
Dragoon USGS 7.5' Quadrangle
Projection: UTM NAD83, Zone 12

Legend

- Project Area
- Current Survey
- Isolated Occurrence

WestLand Resources

0 1,000 2,000 Feet

0 500 1,000 Meters

N

Figure B.1. Results map

APPENDIX C

HISTORICAL MAPS OF THE PROJECT AREA

Figure C.1. Detail of 1943 Dragoon, Arizona 1:62,500 USGS quadrangle

Figure C.2. Detail of GLO Plat for Township 15 South, Range 22 East, surveyed in September 1907

Figure C.3. Detail of GLO Plat for Township 15 South, Range 23 East, surveyed between 1907 and 1916

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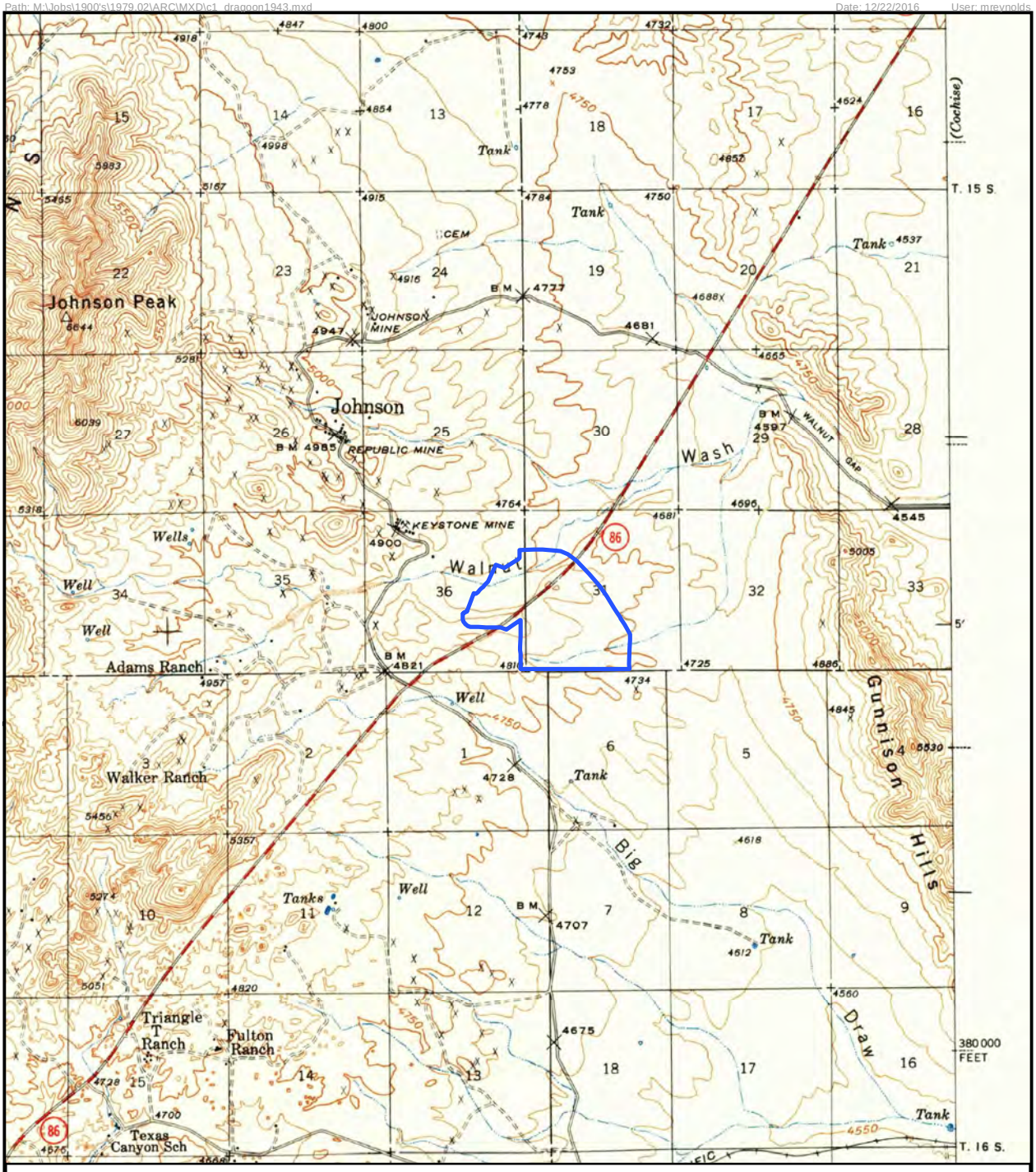


T15S, R22E, Portion of Section 36,
T15S, R23E, Portion of Section 31
Cochise County, Arizona
Dragoon USGS 15' Quadrangle
Projection: UTM NAD83, Zone 12

Legend

Project Area

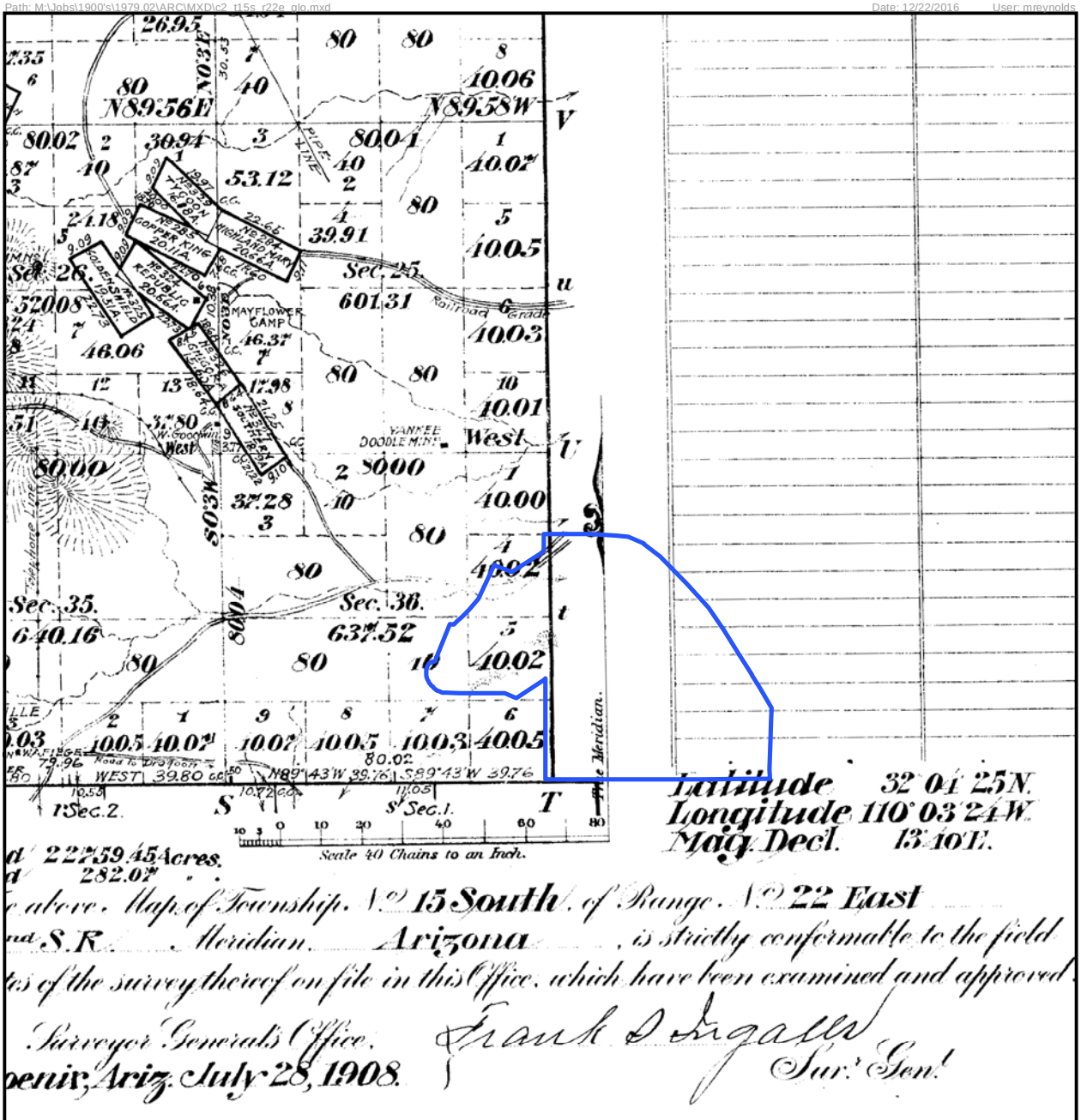
WestLand Resources

0 0.5 1 Miles

0 1 2 Kilometers

N

Figure C.1. Detail of 1943 Dragoon, Arizona 1:62,500 USGS quadrangle



T15S, R22E, Portion of Section 36,
T15S, R23E, Portion of Section 31
Cochise County, Arizona
Projection: UTM NAD83, Zone 12

Legend

Project Area

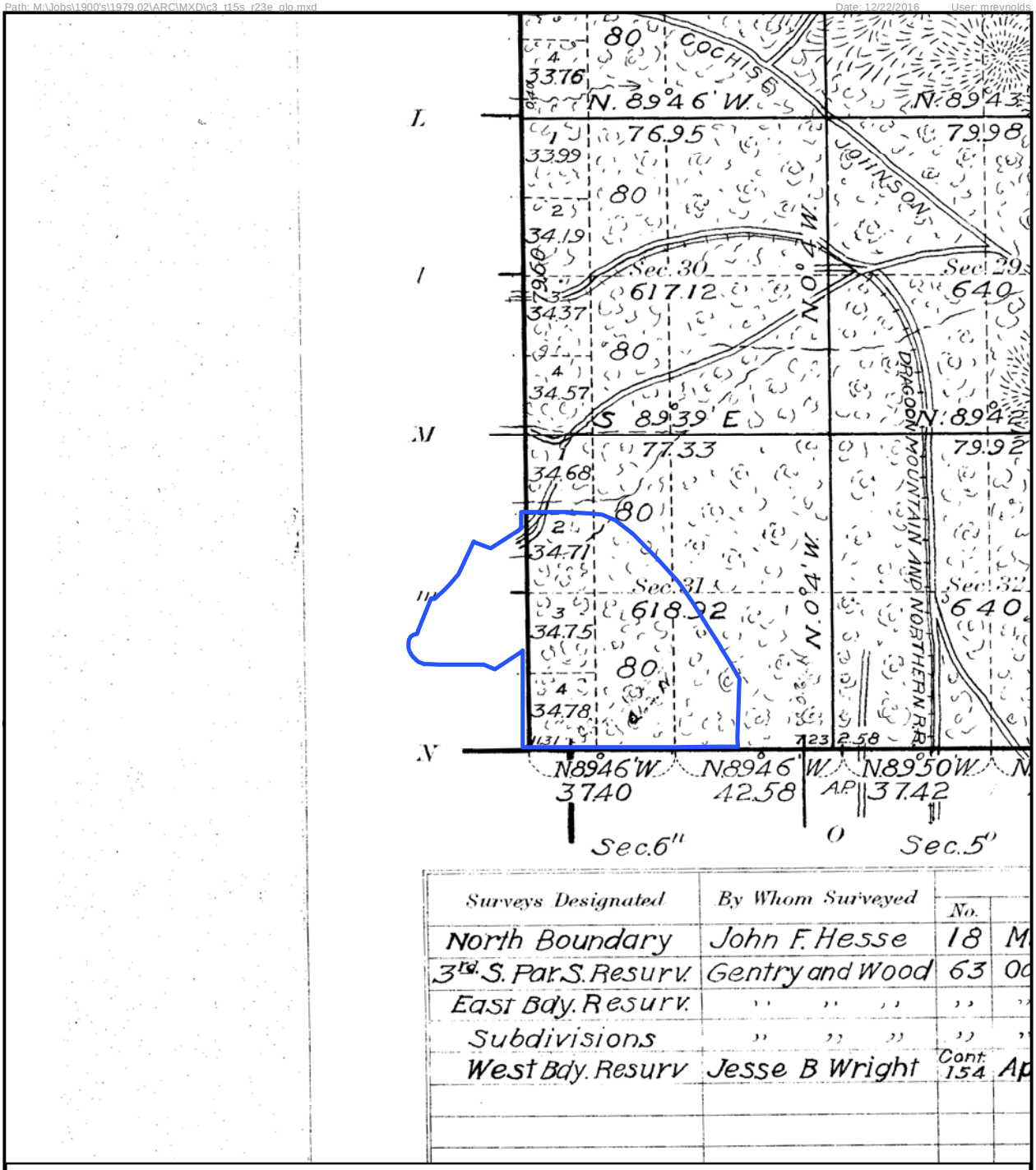
WestLand Resources

0 0.25 0.5 Miles

0 0.5 1 Kilometers

N

Figure C.2. Detail of GLO Plat for Township 15 South, Range 22 East, surveyed in September 1907



T15S, R22E, Portion of Section 36,
T15S, R23E, Portion of Section 31
Cochise County, Arizona
Projection: UTM NAD83, Zone 12

Legend

Project Area

WestLand Resources

0 0.25 0.5 Miles

0 0.5 1 Kilometers

N

Figure C.3. Detail of GLO Plat for Township 15 South, Range 23 East, surveyed between 1907 and 1916