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**AN INTENSIVE CULTURAL RESOURCE INVENTORY OF 543 ACRES
FOR THE NATIONAL ENRICHMENT FACILITY NEAR
EUNICE, LEA COUNTY, NEW MEXICO**

for

GL Environmental, Inc.
Rio Rancho, New Mexico

by

Timothy B. Graves

January 26, 2004

W C R M

WESTERN CULTURAL RESOURCE MANAGEMENT, INC.

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Survey Permit No. NM-03-062

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ABSTRACT

Louisiana Energy Services (LES) is preparing approximately 543 acres (217 hectares) of land under the jurisdiction of the New Mexico State Land Office for the National Enrichment Facility. The project area is located 4.9 miles (7.9 km) east of Eunice in Lea County, New Mexico in Section 32, T21S, R38E. Personnel from Western Cultural Resource Management, Inc. inventoried the proposed project area from September 10 through 12, 2003, locating seven cultural resource sites (LA 140701–LA 140707). Three of the sites are recommended eligible and one site is recommended potentially eligible for nomination to the National Register of Historic Places. According to the current development plan, only one of those four sites (LA 140705) will be impacted by construction of the facility. Should mitigation of impacts be necessary to any of the four eligible and potentially eligible sites, a phased approach to data collection should be implemented. Mitigation could consist of avoidance or by examination of subsurface content and if necessary, larger scale data collection based on the results of the examination.

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ADMINISTRATIVE BACKGROUND

Louisiana Energy Services (LES) is preparing a 543-acre (217-hectare) parcel under the jurisdiction of the New Mexico State Land Office for construction of the National Enrichment Facility in Lea County, New Mexico. Western Cultural Resource Management, Inc. (WCRM) performed a cultural resource inventory of the project area at the request of GL Environmental. Tim Leftwich coordinated the project for GL Environmental and Charles W. Wheeler administered the project for WCRM. Beginning September 10, 2003, WCRM personnel performed an intensive, three-day cultural resource inventory of the project area, which was conducted under the authority of New Mexico Annual Archaeological Survey Permit No. NM-03-62.

PROJECT DESCRIPTION

The project area is located 4.9 mi (7.9 km) east of downtown Eunice, New Mexico in Section 32, T21S, R38E on the USGS 7.5' Eunice NE, New Mexico-Texas topographic map (Figures 1 and 2). Access to the project area is on a gravel road that extends north off New Mexico State Highway 234. The project is bisected east/west by the gravel road and extends 0.9 mile north of the highway. The project area extends 0.5 mile east and west of the gravel road to State of New Mexico fence lines.

PREVIOUS RESEARCH

Before initiation of fieldwork, an online search was performed in the Archeological Records Management Section. Two projects have been conducted within a mile of the project area (Table 1). This work resulted in the recording of two isolated occurrences. No sites were located.

In addition, an online search was made to check for properties listed on the National Register of Historic Places (NRHP) and the State Register of Cultural Properties. None were found.

Table 1. Previous Surveys within One Mile of the Project Area.

NMCRIS Activity No.	Reference	Institution
2934	Clifton 1984	New Mexico State Highway & Transportation Department
75255	Michalik 2001	Archaeological Services by Laura Michalik

PHYSICAL ENVIRONMENT

The project area is located at the southwestern edge of the Llano Estacado as defined by Katz and Katz (1993:Figure 1), approximately 1 mi (1.6 km) northeast of the watershed of Monument Draw and 1 to 2 mi (1.6 to 3.2 km) east of the Monument Jal Oil Field.

The exposed surface sediment within the project area is light brown sand with few rounded limestone/chert gravels. These surface inclusions are rare and occur only in a few of the depressions. The southern portion of the project area is nearly level with occasional depressions; slight rises to the north are

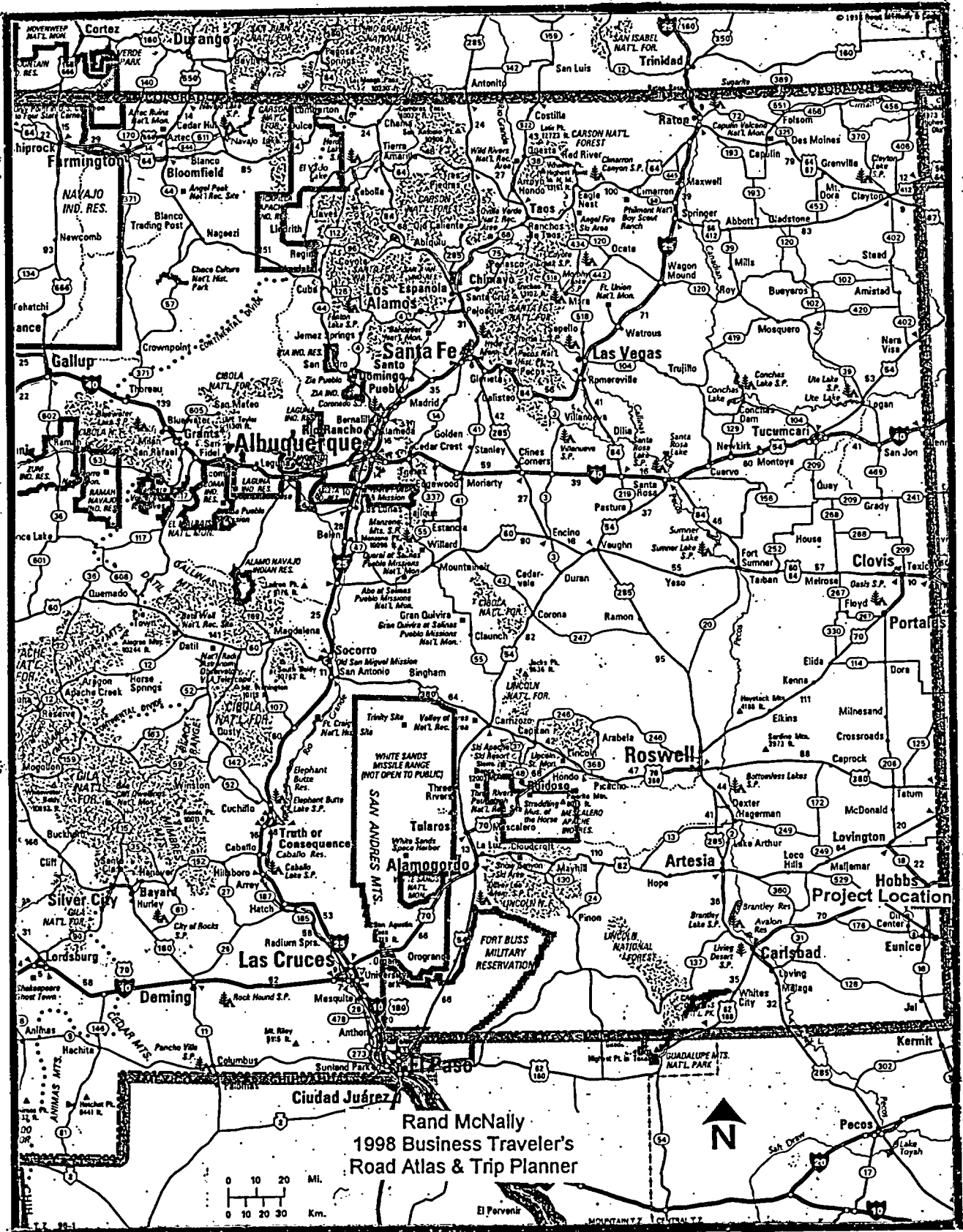


Figure 1. Project location map.

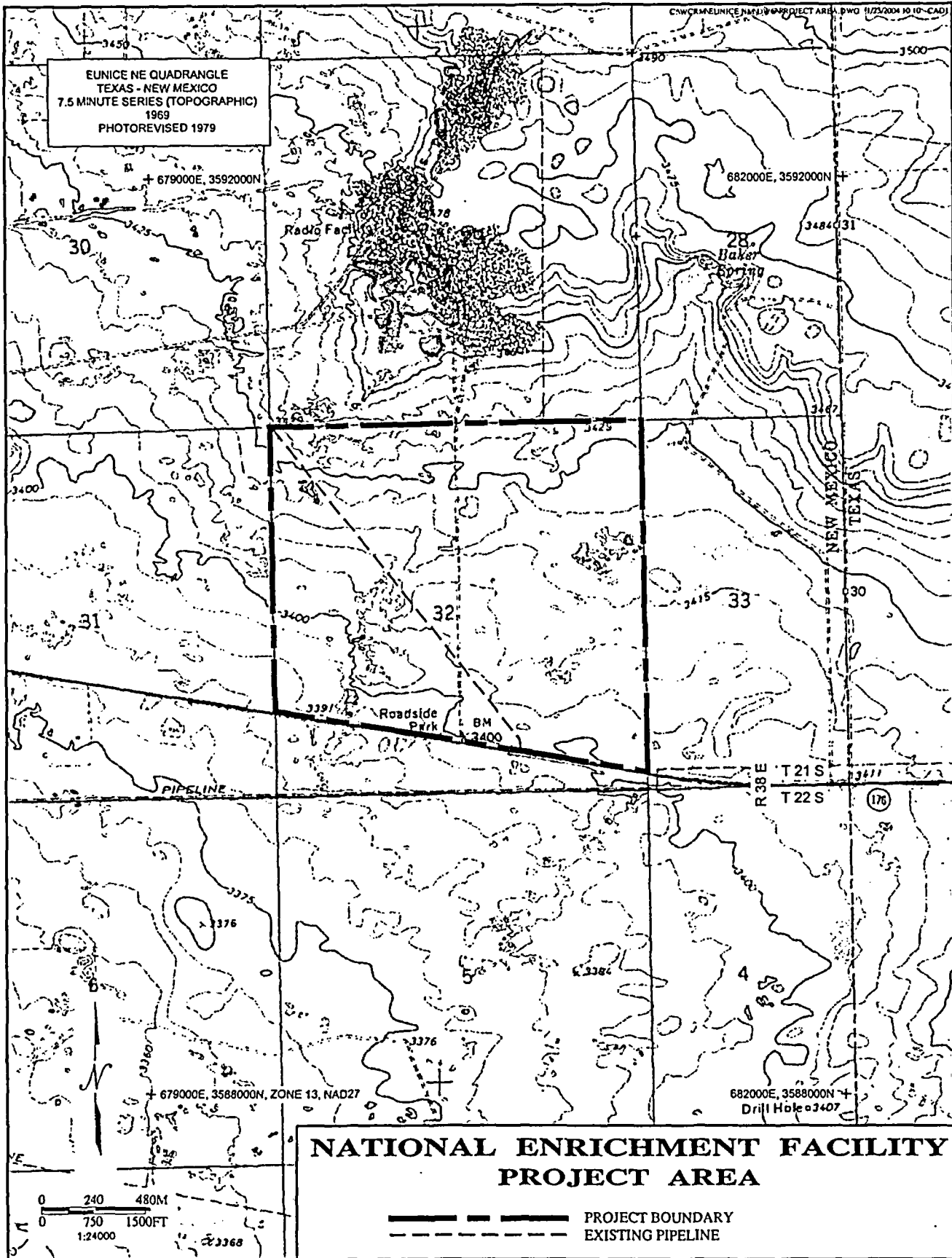


Figure 2. Project area map.

associated with central, eastern, and western dune formations. A hilltop associated with a modern gravel pit is north of the project area, and drainage occurs on a moderate to slight slope from north to south-southwest into Monument Draw. Monument Draw is nearly always dry.

Flora within the project area is dominated by 15 to 25 cm high, dense stands of shinnery oak with some sideoats grama and dropseed grasses that assist in stabilization of the sands and dunal sand formations. The remaining types of flora in the area include honey mesquite associated with small to large coppice dunes, sagebrush, broom snakeweed, soap tree yucca, and prickly pear.

The project area is mainly flat, with minimal topographic relief from the north-northeast to the south-southwest ranging from 3435 to 3380 ft in elevation. Dunes are present in the east-central and west-central portions of the area, and a few shallow, short drainages run from east to west off the west-central dunal formations. The greatest topographic relief is within the large depressions that range from 0.25 to 2.0 m in depth.

CULTURAL HISTORY

This section presents a brief overview of the prehistory and history of the project location. The prehistory of the region can be divided into broad periods based on subsistence patterns and cultural material. These periods include Paleoindian (ca. 9500-6000 B.C.), Archaic (ca. 6000 B.C.-A.D. 500), Formative (ca. A.D. 500-1450), Protohistoric/Ethnohistoric (ca. A.D. 1450-1540), and Historic (A.D. 1540-1950). Each of these periods has been subdivided into traditions, phases, or eras. The foundation for the following has been provided by Katz and Katz (1993), Kearns et al. (2001), Mallouf (1985), MacNeish (1993), Sebastian and Larralde (1989), and Turnbow et al. (2000).

During the Paleoindian period (9500-6000 B.C.), bands of hunters and gatherers exploiting a wide variety of large and small game and floral resources moved into the region. The Paleoindian period has been divided into traditions based on spear point styles. These include the Clovis (9500-9000 B.C.), Folsom (9000-8000 B.C.), and Plano complexes (8000-6000 B.C.). Clovis findings are unknown in the vicinity of the project area. Clovis sites contain fluted lanceolate (Clovis) spear points, blades, knives, scrapers, core choppers, and burins generally associated with mammoth remains. Folsom sites in the region occur infrequently, though they are represented by isolated finds. These sites contain fluted Folsom points and unfluted Midland points and a lithic assemblage similar to that of the Clovis similar with the addition of gravers, spokeshaves, pointed scrapers, drills, abrading stones, awls, and needles. The diversity of resources increased to include smaller game, though bison remained a major resource. The later Paleoindian tradition is characterized by numerous spear point styles that include Plainview, Rex Rodgers, Golondrina, Barber, Angostura, and Scottsbluff. Modern faunal assemblages are present at sites corresponding with these point styles; some processing of flora likely occurred.

The Archaic period (6000 B.C.-A.D. 500) marks a shift to a more diverse subsistence base that includes a greater dependence on wild plant resources because of the extinction of megafauna and drier conditions. Dependence on large game animals decreases through this period. The period has been divided into three broad time frames that include Early (6000-4000 B.C.), Middle (4000-1000 B.C.), and Late (1000 B.C.-A.D. 500). The Late Archaic period (Archaic 3 and 4 after Katz and Katz [1993]) is well represented in the archaeological record by numerous sites in the region. Cultural remains associated with the Early Archaic period include Jay and Pandale projectile point styles of large lanceolate, large-stemmed, straight-base spear points with concave knife blades and various scraping implements (Mallouf 1985). In addition, ground stone implements and hearth stones in thermal features appear, with decreasing use of end

scrapers and increasing use of gouges. Absolute chronological dates from this time period are predominantly from the Lubbock Lake and Blackwater Draw sites, though the specific context is questionable (Sebastian and Larralde 1989). The Middle Archaic period is generally absent from the archaeological record, though in other regions, archaeological evidence indicates an increased population base. Katz and Katz (1993) notice a hiatus in absolute dates from 3200 to 1700 B.C. during a portion of the Middle Archaic period, or between their Archaic 2 and Archaic 3 periods. The Middle Archaic period in the area appears to represent a continuum of earlier subsistence patterns in areas of the Llano Estacado. Projectile point styles change to contracting stems with flat, rounded or pointed bases and expanding stems with concave bases (Kearns et al. 2001). Specific types include the Langtry and Val Verde types of the earlier Middle Archaic with Shumla, Marcos, Almagre, Williams, Conejo, Lange, Marshall, and Tortugas types to the immediate south (Mallouf 1985). Milling stones and handstones are still rare and thermal features are still represented. The absolute chronological dates for this time period are limited and restricted to areas west of the region associated with the Rio Grande and adjacent landforms. These dates even include residential, hut-type structures (O'Laughlin 1980). The Late Archaic period is a well represented closer to the project area and reflects an economy oriented toward floral resources. Bison is still the main faunal resource in the Llano Estacado, but smaller game and floral remains occur within this period. The processing of desert succulents becomes a tradition in the Late Archaic and is represented west of the region by large burned rock ring middens. Late Archaic period sites are found in almost all ecological niches, and hut-type structural remains on sites west of the region become more common (Graves et al. 1996). Diagnostic projectile points include styles assigned as Darl, Leslies 8C, 8D, and 9, Ensor, Palmillas, Paisano, Frio, Edgewood, Ellis and for later portions of the Late Archaic San Pedro styles, Marcos, Marshall, Shumla, En Medio, Williams, Leslies 6C, 6D, and 8A, and the Pecos along with a numerous untyped, transitional, diminutive forms. Absolute chronologically dated sites in the region are more common but still limited to areas along the Pecos River, within the Pecos River valley, and to the south in the Trans-Pecos region. Many rockshelters in the region have yielded perishable remains associated with the Late Archaic Period. None in the region have yielded data reflective of early agriculture as have sites within the Mogollon culture area to the immediate west.

The Formative period (ca. A.D. 500-1450) includes a cultural tradition that is defined as the Eastern Jornada Mogollon. The Eastern Jornada Mogollon is evident in areas east of the Pecos River, extending into the shinnery oak belt of the Llano Estacado and west Texas. Three to four phases have been proposed for this region. The phases of the Eastern Jornada sequence roughly correspond to the phases farther west but with notable differences. One set of three phases includes Querecho, Maljamar, and Ochoa (A.D. 900-1450) as proposed by Corley (1965) and Leslie (1979). Later investigators have proposed a seven-phase period, with each phase numbered sequentially and described as Formative 1-7 (A.D. 500-1375). This report takes both into consideration and extends the Formative period from A.D. 500 to 1450.

The beginning of the Formative period is marked by the introduction of brown ware ceramics, small projectile points, reliance on bison hunting, and later, some horticulture with associated settling in a few areas. The brown ware types in the early portion include Jornada Brown, Pecos Micaceous Brown, South Pecos Brown, and Alma Plain. By A.D. 1050, ceramic types include Cebolleta Black-on-white, gray wares, McKenzie, and Chupadero Black-on-white. These give way to Middle Pecos Black-on-white, corrugated brown wares, and other exotic or nonlocal painted wares. The point styles remain similar to those of the Late Archaic period, although they are smaller in size. Eventually these corner-notched point styles are replaced by side-notched arrow points. Ground stone implements begin to increase in number and include bedrock mortars. Lithic tools remain diversified, though a greater reliance on expedient tools becomes prevalent. Thermal features are common and consist of burned rock ring middens to the west, and hearths and roasting facilities to the east. Structures become more common and evolve from simple

surface huts or living floors to subterranean rooms and pithouses. These eventually are deep pithouses, then revert to shallower pithouses or surface rooms by the end of the period. Faunal remains are generally small game and predominantly rabbit.

The early portion of the Protohistoric/Ethnohistoric period (ca. A.D. 1450-1540) was dominated by the introduction of Athapaskans into the region. The cultural remains during this time are characterized by tipi rings and burned rock ring middens. The latter have been documented with absolute dates similar to those in the area immediately west of this region. The projectile points from the early portion of the period include Washita, Harrell, Toyah, and Leslie's Types 2D, 2E, and 2F. The ceramic assemblages include Ochoa Indented. Ground stone is prevalent on many of the sites along with informal and formal scraping tools.

The Historic period (A.D. 1540-1950) is represented by the introduction of European-manufactured goods and domesticated animals. Site types are represented by tipi ring campsites, rock art, crevice burials, Spanish encampments, Comanchero/Cibolero sites, and homestead dugouts. Spanish entradas into the Llano Estacado include Coronado in 1541, Espejo in 1583, and de Sosa in 1590. The area was generally utilized as a route to the north during the remaining portions of the period, and sites other than those exhibiting tipi rings and burned rock ring middens are difficult to discern on the surface. Some structural remains have been noted west of the area within the Pecos Valley margins and include walled enclosures (Mera 1938). The Apache dominated the area until the 1700s, when the Comanche displaced the Apache. The earliest Angloamerican utilization of the region (after Spanish expeditions) began in the 1860s, after the Indians were contained and the Homestead Act of 1862 was passed. Cattle ranchers and settlers soon moved into the region, including well-known ranchers of the time such as John Chisum. Numerous Mexican-Americans moving across the Sacramento Mountains established ranches and small towns. Railroads brought another wave of settlers into the region along with technological innovations integrating the region into the national economy. Subsistence farming ended in the 1930s due to droughts and the Great Depression. Large established oil companies discovered important fields in the Monument Jal Oil Field introducing the modern era into the area around Eunice.

METHODS

WCRM was provided a facility layout map of the 543-acre project area and was informed that brass caps are present in the northwestern and northeastern corners of the project area. AutoDesk Map 5[®] was used to overlay the plat on the USGS 7.5' Eunice NE quadrangle (from All Topo Maps[®] software) and onto USGS orthographic aerial images (from Terraserver.com) to assist in locating and assessing the property (Figure 3).

From September 10 through 12, 2003, Tim Graves (field supervisor), Lenora Etsitty, Lynette Etsitty, Henry Etsitty, Vernon Foster, and Marlene Owens intensively surveyed the project area. A Magellan 330 global positioning system (GPS) unit accurate to 3-5 m was utilized to control the survey and to record cultural evidence. GPS shots were later transferred to digital topographic maps via All Topo Maps[®] software.

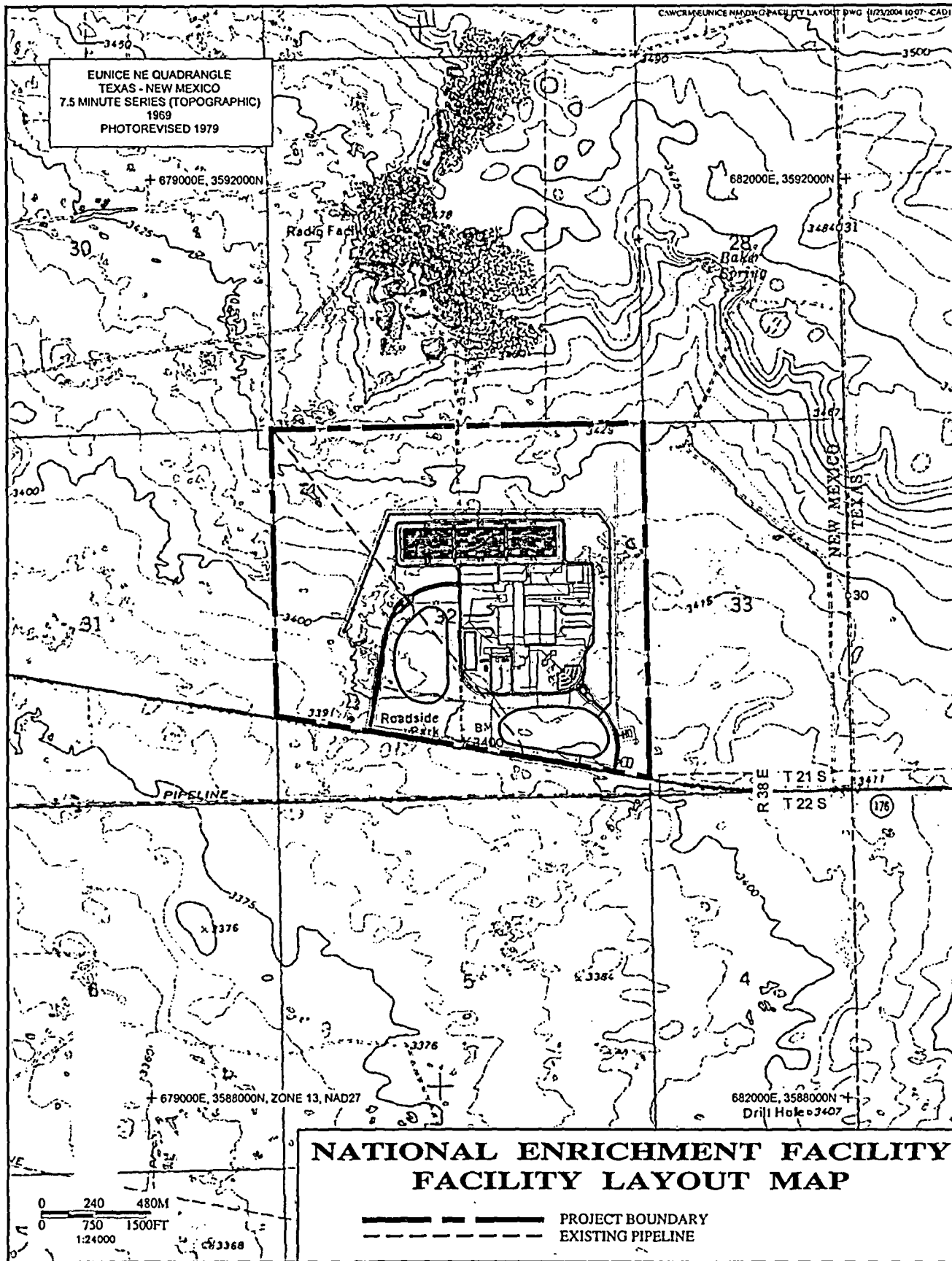


Figure 3. Facility layout map.

The survey was performed in zigzag transects spaced 15 m apart. Special attention was given to depressions, rodent burrows, and anthills. When an isolated occurrence was encountered, its attributes were recorded and a GPS shot was taken. Cultural resource sites were recorded on sketch maps produced by compass and pace with assistance from the GPS. The sites were recorded on Laboratory of Anthropology Site Record forms, and photographs of the site and project area were taken. No artifacts were collected.

RESULTS

Sites

Seven new prehistoric sites (LA 140701-140707) were recorded (Figure 4). Two of the sites (LA 140701 and 140702) are situated in the east-central mesquite dunal setting close to a drainage on the east. Two other sites (LA 140703 and LA 140704) are situated in large depressions in the north-central to eastern portion of the project area. One site (LA 140705) is located in the west-central portion of the project area, within several large coppice mesquite dunes. The final two sites (LA 140706 and LA 140707) are in the northwestern corner of the project within several large depressions. A summary of each site is presented below.

Site Number: LA 140701

Temporary Number: GNS 1

Cultural/Temporal Affiliation: Unknown prehistoric

Site Type: Camp

Site Description: LA 140701 is a small, prehistoric campsite situated in mesquite and scrub oak dunal terrain. The cultural evidence of the site is entirely located in two depressions 1.0 to 2.0 m below the surrounding surface (see Figure 4; Figure 5). These areas contain minimal floral cover, and visibility in the depressions exceeds 80 percent. Surface visibility on dunal surfaces is limited to less than 50 percent, given extensive cover by flora in the area. The present flora is dominated by shinnery scrub oak less than 30 cm in height with some mesquite, *Sporobolus* sp., sagebrush, broom snakeweed, and a few soaptree yucca (*Yucca elata*). The surface sediments are light brown sand with a trace of rounded gravel. These surface inclusions are found only in depressions. Minimal surface disturbance consists of grazing by cattle. The site extends roughly 60 m southeast/northwest x 26 m southwest/northeast.

The remains of one thermal feature were identified on this site. Feature 1 consists of a disarticulated concentration of 25 limestone fire-cracked rocks over a 1.5 x 1.0 m area with some additional pieces scattered to the east and west. A single trowel test into the central portion of this feature revealed a lack of subsurface cultural deposits.

The cultural material recorded on the surface includes 11 pieces of debitage, a single rounded limestone hammerstone, and a few scattered limestone fire-cracked rocks. The material was randomly scattered over the surface with a slight clustering of the debitage around Feature 1 in the north-central portion of the site. Debitage includes five tertiary flakes of white chert, one secondary flake of pink chert,

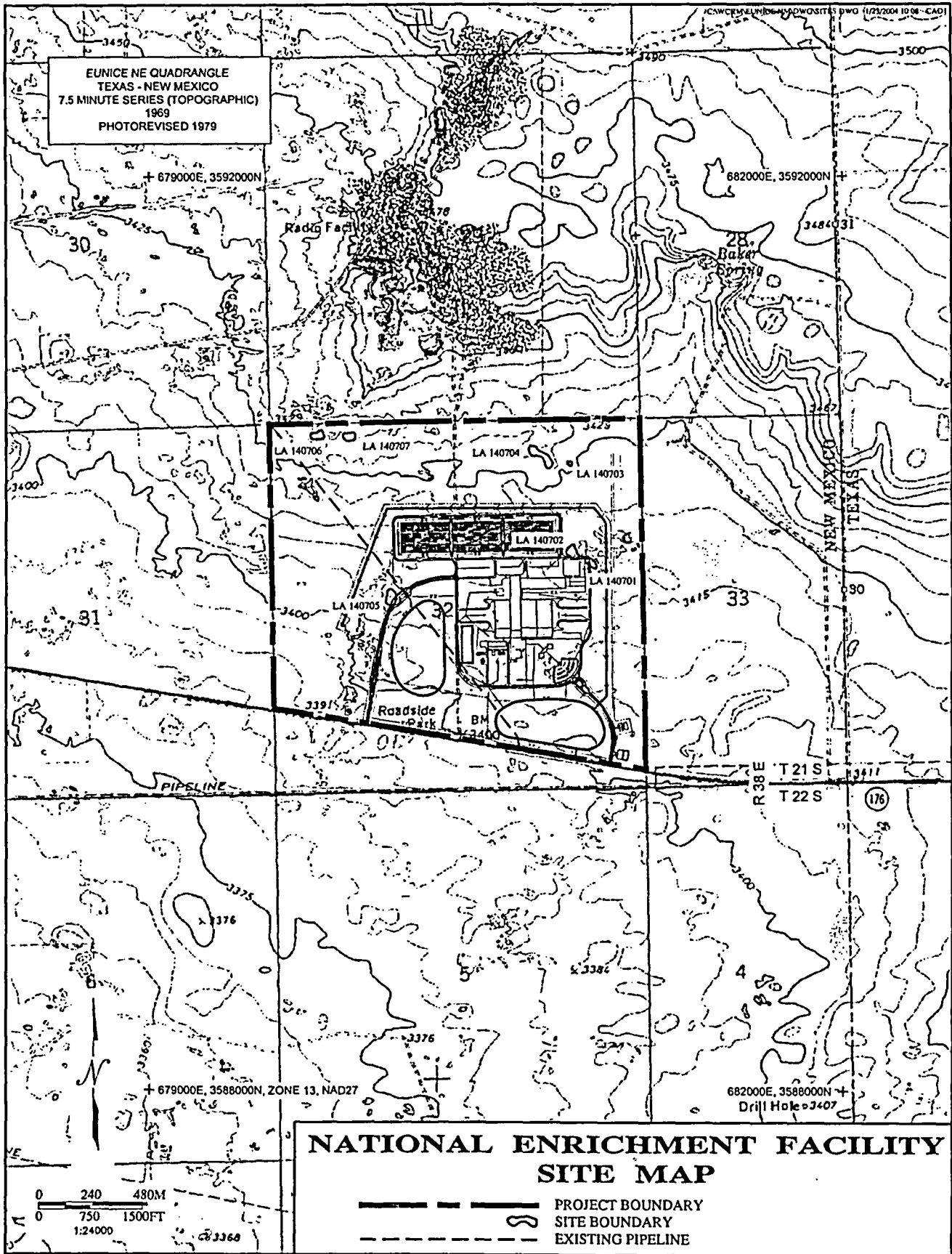


Figure 4. Site location map. Footprint of the National Enrichment Facility is derived from the facility layout map (see Figure 3).

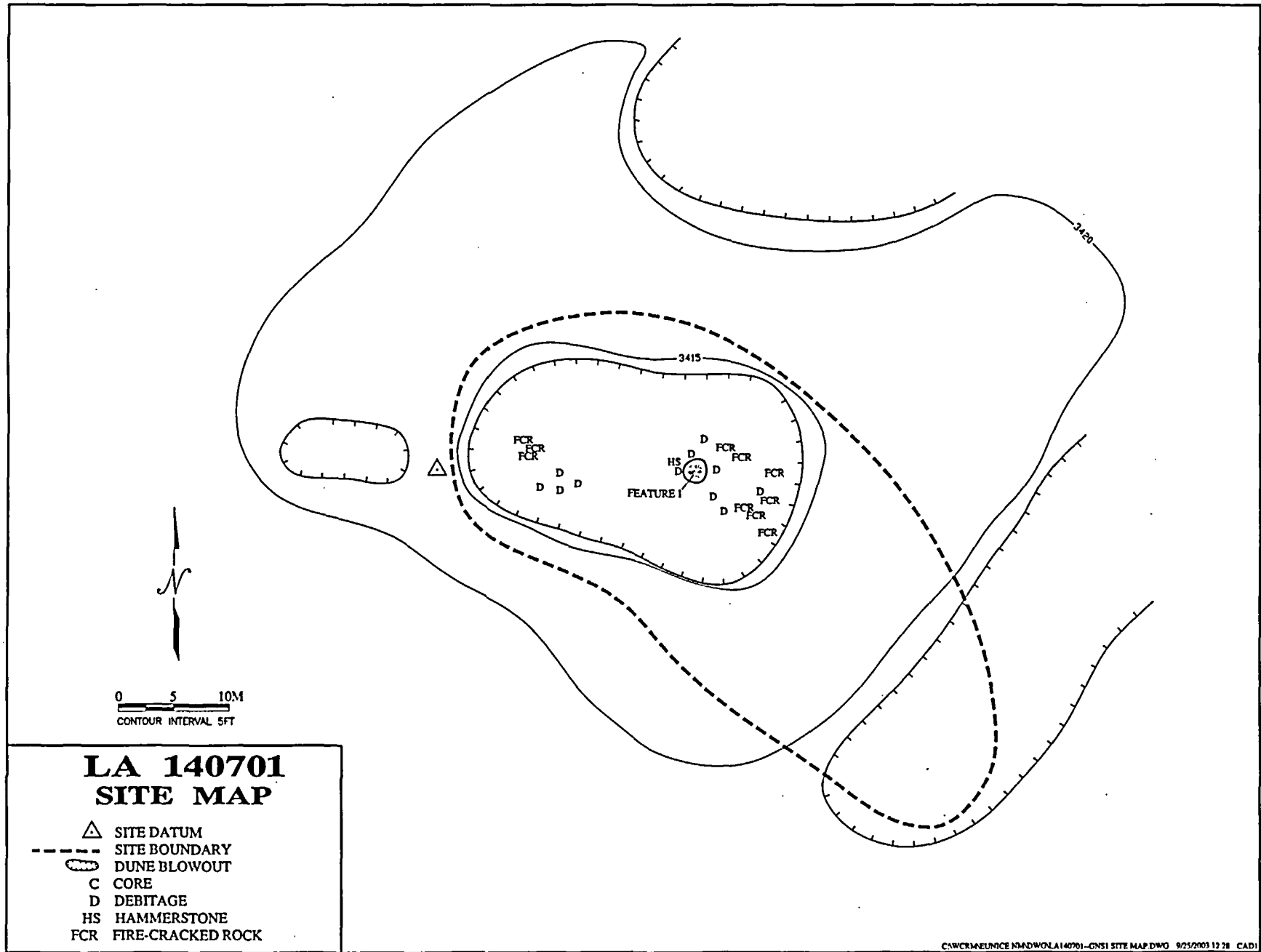


Figure 5. Site map, LA 140701.

and five chalcedony tertiary flakes. The size of the debitage ranges from 0.3 to 1.8 cm long, 0.2 to 1.2 cm wide, and 0.1 to 0.3 cm thick. Most of the flakes are incomplete, with lateral edges, terminations, or platforms missing. The pieces that contain platforms have single-facet, unprepared platforms. The limestone hammerstone is 6 cm in diameter and is of a high specific density compared to other limestone fire-cracked rocks. The pieces of fire-cracked rock are scattered upslope and east of Feature 1 and west of the feature. These pieces likely represent discard from Feature 1. Two other pieces of fire-cracked rock recorded in the south-central portion of the site in a depression indicate that additional thermal features could have been present.

LA 140701 is in fair condition with one thermal feature and a low-density scatter of lithic artifacts. Feature 1 contains no subsurface remains, as determined by a trowel test. Analysis of the artifacts indicates that simple manufacture or refurbishment of lithic tools likely occurred in conjunction with the feature. The site likely represents a single, prehistoric component.

Condition: The site is in fair condition with minimal surface disturbance. The area is used for cattle grazing.

Expected Project Impacts: The location of the proposed facility will impact this site.

Significance and National Register Eligibility: The lack of subsurface deposits within the thermal feature indicates that minimal data are present to contribute to the prehistory of the region. The recording of the cultural material and the identification of a lack of deposits in the feature have exhausted the research potential of this site. LA 140701 is recommended not eligible for nomination to the NRHP.

Recommendations: No further work.

Site Number: LA 140702

Temporary Number: GNS 2

Cultural/Temporal Affiliation: Unknown prehistoric

Site Type: Camp

Site Description: LA 140702 is a small, prehistoric campsite situated in mesquite/scrub oak dunal terrain west of a small playa (see Figure 4; Figure 6). The cultural evidence of the site is entirely located in three depressions 1.0 to 2.0 m below the surrounding surfaces. These areas contain minimal floral cover and visibility in the depressions exceeds 80 percent. Surface visibility on dunal surfaces is limited to 50 percent, given extensive cover by flora. The present flora is dominated by shinnery scrub oak less than 30 cm in height with some mesquite, *Sporobolus* sp., sagebrush, and a few *Yucca elata*. The surface sediment is light brown sand with a trace of rounded gravel. These surface inclusions are only in depressions. Minimal surface disturbance consists of grazing by cattle and a 10 cm deep livestock trail bisecting the west-central portion of the site from north to south. The site measures roughly 65 m north/south x 45 m east/west.

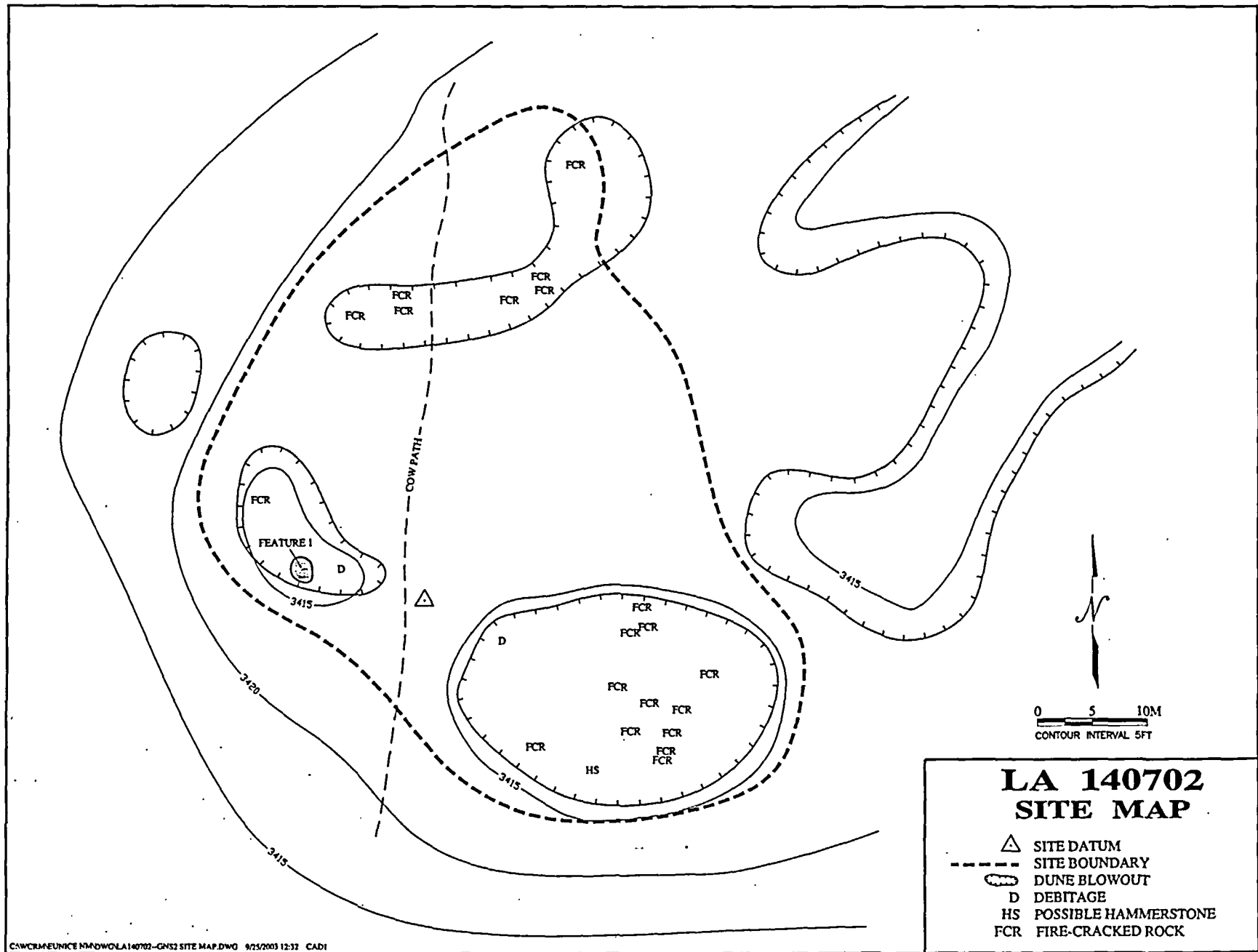


Figure 6. Site map, LA 140702.

The remains of one thermal feature were identified on this site. Feature 1 consists of a disarticulated concentration of 20 limestone fire-cracked rocks over a 2.0 m diameter area with one additional piece to the north. A single trowel test into the central portion of this feature revealed that pieces are present to a depth of more than 10 cm below the modern ground surface. This test also revealed a lack of intact deposits and a lack of charcoal-stained sediments.

The cultural material recorded on the surface includes two pieces of debitage and a few scattered limestone fire-cracked rocks. The thermal material is scattered within two depressions. Debitage includes one tertiary flake of white chert and one secondary flake of tan chert. The white chert flake lacks a platform and measures roughly 1.2 x 0.5 x 0.2 cm. The tan chert flake is a complete flake with an unprepared, cortex-bearing, single-facet platform. The flake measures 1.4 x 0.7 x 0.2 cm. Scattered pieces of fire-cracked rock in the northern and southeastern portions of the site likely represent scattered remains of thermal features that were once present. One large, thermally altered piece of limestone was noted at the northern edge of the site. It measures 28 x 24 x 5 cm. A limestone cobble 10 cm in diameter was also noted in the southeastern portion of the site and may have represented a pounding implement.

LA 140702 is in fair condition with one thermal feature and a low-density scatter of nondiagnostic lithic artifacts. The feature does contain some fire-cracked rock to more than 10 cm below the present ground surface, although charcoal-stained sediments and intact deposits are not present. Lithic artifacts recorded on the surface included only two flakes and a potential hammerstone. Analysis of the artifact indicates that simple manufacture or refurbishment of lithic tools likely occurred in conjunction with the feature. The presence of cultural thermal materials in several depressions indicates that more than one thermal feature was once present. The likelihood of more than a single feature suggests that the site represents more than a single-use episode and potentially multiple components. It may be safe to regard the items comprising the site as prehistoric.

Condition: The site is in fair condition with minimal surface disturbance. The area is used for cattle grazing.

Expected Project Impacts: The location of the proposed facility will impact this site.

Significance and National Register Eligibility: The lack of subsurface deposits within the thermal feature indicates that minimal data are present to contribute to the prehistory of the region. The recording of the cultural material and the identification of a lack of deposits in the feature have exhausted the research potential of this site. LA 140702 is recommended not eligible for nomination to the NRHP.

Recommendations: No further work.

Site Number: LA 140703

Temporary Number: GNS 3

Cultural/Temporal Affiliation: Unknown prehistoric

Site Type: Camp

Site Description: LA 140703 is a small, prehistoric campsite situated in mesquite/scrub oak dunal terrain (see Figure 4; Figure 7). The cultural evidence of the site is entirely located in one depression 1.0 to 2.0 m below the surrounding surface. This area contains minimal floral cover, and visibility in the depression exceeds 80 percent. Surface visibility on dunal surfaces is limited to 50 percent, given extensive cover by flora in the area. The present flora is dominated by shinnery scrub oak less than 30 cm in height with some mesquite, *Sporobolus* sp., sagebrush, broom snakeweed, and a few soap tree yucca (*Yucca elata*). The surface sediment is light brown sand with a trace of rounded gravel. These surface inclusions are only in the depression. Minimal surface disturbance consists of grazing by cattle. The site extends roughly 22 m east/west x 18 m north/south.

One thermal feature was identified on this site. Feature 1 consists of a disarticulated concentration of roughly 50 limestone fire-cracked rocks over a 2.0 m diameter area, with five additional pieces scattered to the west and southeast. A trowel test into the central portion of this feature revealed a lack of subsurface cultural deposits. No intact deposits or charcoal-stained sediments were observed.

Cultural material includes three pieces of debitage, a single utilized flake, and five scattered limestone fire-cracked rocks. The material is scattered around Feature 1. Artifacts include two tertiary flakes of chalcedony, a white chert secondary flake, and a white chert utilized tertiary flake. The chalcedony flakes are complete with unprepared, single-facet platforms; they range from 1.0 to 1.6 cm long, 0.6 to 1.2 cm wide, and 0.2 to 0.4 cm thick. The white chert secondary flake is incomplete, contains a single-facet, cortex-bearing platform and measures 1.3 x 0.8 x 0.4 cm. The utilized flake has edge damage on a straight edge and measures 1.7 x 1.3 x 0.4 cm. The scattered pieces of limestone fire-cracked rock measured from 5 to 15 cm in diameter, and all appear to represent scatter from Feature 1.

LA 140703 is a small prehistoric camp in fair condition with one thermal feature and a low-density scatter of lithic artifacts. The presence of all cultural material in one depression and the association with a single feature suggests that the site represents a single-use episode during prehistoric times.

The feature lacks subsurface deposits, as determined by a trowel test. Lithic artifacts recorded on the surface include only debitage and a utilized flake. Analysis of the artifacts indicates that simple manufacture or refurbishment of lithic tools and expedient utilization of the materials likely occurred in conjunction with the feature. The site remains unassigned temporally given the lack of diagnostic artifacts.

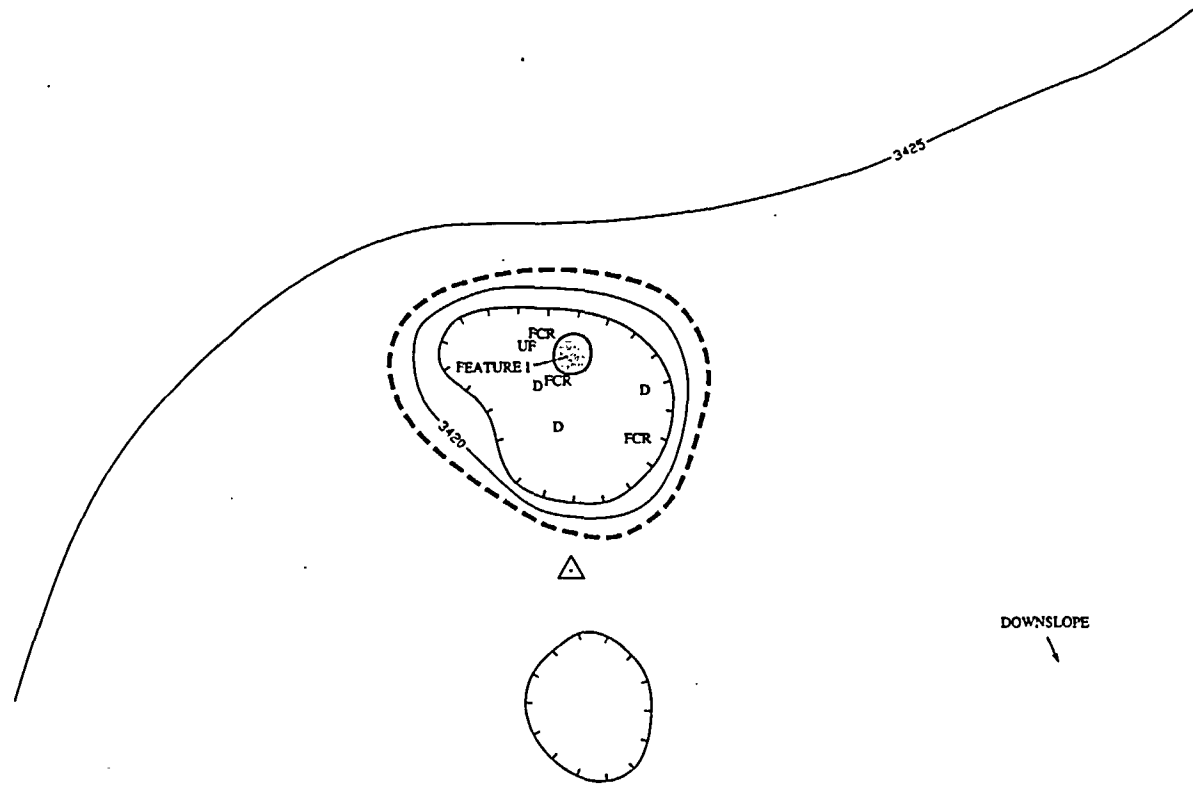
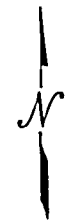
Condition: The site is in fair condition with minimal disturbance. The area is used for cattle grazing.

Expected Project Impacts: None

LA 140703 SITE MAP

- △ SITE DATUM
- - - SITE BOUNDARY
- DUNE BLOWOUT
- UF UTILIZED FLAKE
- D DEBITAGE
- FCR FIRE-CRACKED ROCK

0 5 10M
CONTOUR INTERVAL 5FT



15

Figure 7. Site map, LA 140703.

Significance and National Register Eligibility: The lack of subsurface deposits within the thermal feature indicates that minimal data are present to contribute to the prehistory of the region. The recording of the cultural material and the identification of a lack of deposits in the feature have exhausted the research potential of this site. LA 140703 is recommended not eligible for nomination to the NRHP.

Recommendations: No further work.

Site Number: LA 140704

Temporary Number: GNS 4

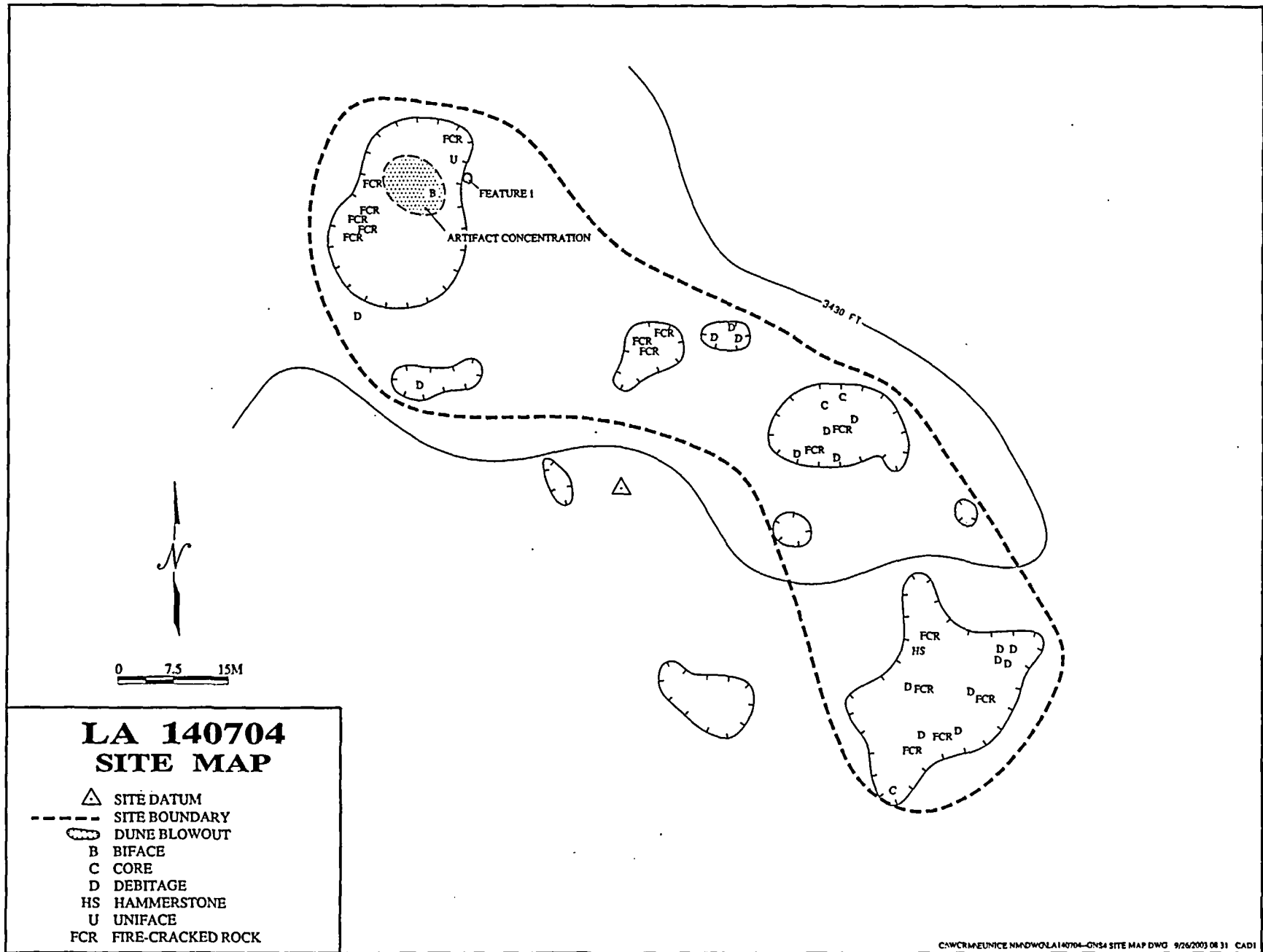
Cultural/Temporal Affiliation: Unknown prehistoric

Site Type: Camp

Site Description: LA 140704 is a moderately sized prehistoric campsite situated in mesquite/scrub oak dunal terrain (see Figure 4; Figure 8). Cultural evidence of the site is located in multiple depressions 1.0 to 2.0 m below the surrounding surface. This area contains minimal floral cover, and visibility in the depression exceeds 80 percent. Surface visibility on dunal surfaces is limited to 50 percent, given extensive cover by flora in the area. The present flora is dominated by shinnery scrub oak less than 30 cm in height, with some mesquite, *Sporobolus* sp., sagebrush, broom snakeweed, and a few soaptree yucca (*Yucca elata*). The surface sediment is light brown sand with a trace of rounded gravel. These surface inclusions are only in depressions. Minimal surface disturbance consists of grazing by cattle. The site measures roughly 126 m southeast/northwest x 35 m southwest/northeast.

One thermal feature was identified on this site. Feature 1 consists of a charcoal stain 50 cm in diameter with one large limestone fire-cracked rock and one large (3.5 cm in length) quartzite flake eroding from the edge of dunal sediments against the eastern edge of a depression. The feature was tested with a trowel, and intact deposits with charcoal-stained sediments and charcoal were identified to a depth exceeding 10 cm. A moderate density of lithic artifacts, including three formal lithic tools, was located directly west of the feature.

Cultural material includes 59 lithic artifacts and an extensive, low-density scatter of fire-cracked rock. The lithic artifacts include 50 pieces of debitage, five cores, two unifacially shaped tools, one Stage II biface, and a mano/hammerstone. The majority of the artifacts are situated in the far northwestern portion of the site in an area 8 m in diameter. Debitage includes primarily tertiary flakes with some secondary pieces. Primary flakes were not noted. The raw material of the debitage is primarily white chert and chalcedony, with a few pieces of tan and gray chert and brown and purple quartzite. Debitage ranges in size from 0.3 to 2.5 cm long, 0.2 to 1.8 cm wide, and roughly 0.1 to 0.7 cm thick. The majority of these flakes were incomplete, lacking lateral edges and in some instances, platforms. Nearly all of the complete flakes have unprepared, single-facet platforms, many with cortex. Some pressure flakes with lipped or prepared, ground, faceted platforms were noted. The five cores are recorded in the southeastern and east-central portions of the site. These include three cores of white chert, one of chalcedony, and one of purple quartzite. The cores are all small, exhausted remains of larger specimens, and all contain multiple facets. All are likely from small cobbles or pebbles that may be locally available nearby. Lithic



**LA 140704
SITE MAP**

- △ SITE DATUM
- - - SITE BOUNDARY
- ☪ DUNE BLOWOUT
- B BIFACE
- C CORE
- D DEBITAGE
- HS HAMMERSTONE
- U UNIFACE
- FCR FIRE-CRACKED ROCK

Figure 8. Site map, LA 140704.

tools include a Stage II white chert biface (Figure 9a) and two unifacial tools, one white chert and the other pink to purple quartzite. All of these tools are situated in the concentration of lithic artifacts in the northwestern portion of the site near Feature 1. The chert unifacial tool is steep sided and measures 0.6 cm thick with two definable spurs (Figure 9b). The biface measures 0.4 cm thick. The mano/hammerstone is a large piece of limestone ground on a single surface and measures 10 x 8.5 x 6.5 cm. Battered edges were noted on all outer extremities of the piece. This lithic tool is located in the far southeastern portion of the site. The scattered pieces of fire-cracked rock are present in most of the site and indicate that additional thermal features were once present or may still be present below the modern ground surface. Many of the pieces were noted as eroding from dunal sands into the depressions, as were many of the lithic artifacts.

LA 140704 is a moderately sized prehistoric camp in fair condition with one thermal feature and a low- to moderate-density scatter of lithic artifacts. Feature 1 is located in the northwestern portion of the site and contains intact deposits (charcoal and potentially subsistence remains) extending more than 10 cm below the modern ground surface. Scattered thermal material in numerous other depressions and eroding from dunal sands containing the depressions indicates that additional thermal features were either once present or may still be present below the modern ground surface. The site represents multiple prehistoric use episodes of likely multiple components, although the lack of diagnostic artifacts precludes temporal assignment.

Analysis of the artifacts indicates that manufacture and refurbishment of lithic tools and expedient utilization of the materials likely occurred in conjunction with the feature(s). Lithic artifacts may provide data regarding activities in association with Feature 1 and other potential, cultural features.

Condition: The site is in fair condition with minimal surface disturbance. The area is used for cattle grazing.

Expected Project Impacts: None

Significance and National Register Eligibility: The remains on this site may provide data significant to the prehistory of the region. Site LA 140704 contains an intact thermal feature with charcoal-stained sediment and possibly chronological data. Subsistence remains may be present. Lithic artifacts could provide data regarding activities associated with the feature and other potential features. LA 140704 is recommended eligible for nomination to the NRHP under criterion (d), which identifies sites "that have yielded, or may be likely to yield, information important in prehistory or history" (National Park Service [NPS] 1995:2). In applying the criterion to archaeological sites, the NPS (1995:21) states that

Criterion D most commonly applies to properties that contain or are *likely* to contain information bearing on an important archeological research question. The property must have characteristics suggesting the likelihood that it possesses configurations of artifacts, soil strata, structural remains, or other natural or cultural features that make it possible to do the following:

- Test a hypothesis or hypotheses about events, groups, or processes in the past that bear on important research questions in the social or natural sciences or the humanities; or
- Corroborate or amplify currently available information suggesting that a hypothesis is either true or false; or

- Reconstruct the sequence of archeological cultures for the purpose of identifying and explaining continuities and discontinuities in the archeological record for a particular area.

Recommendations: Avoid if possible. If avoidance is not feasible, a mitigation plan will need to be developed and implemented.

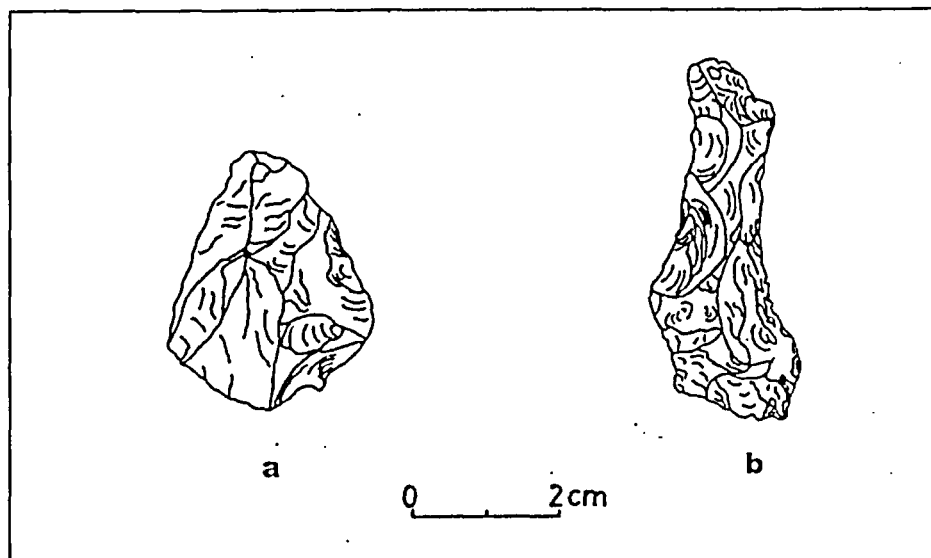


Figure 9. Selected lithic tools from LA 140704: *a*, chert Stage II biface; *b*, chert unifacial tool.

Site Number: LA 140705

Temporary Number: GNS 5

Cultural/Temporal Affiliation: Unknown prehistoric

Site Type: Camp

Site Description: LA 140705 is a small, prehistoric campsite situated in mesquite/scrub oak dunal terrain in several small playa depressions (see Figure 4; Figure 10). The site setting is unique, as most sites are located within depressions within extensive dunes stabilized by mesquite, scrub oak, and grasses. LA 140705 is located in a broad, semideflated, interdunal area with surrounding mesquite dunes and dunal sediments stabilized by extensive grasses and scrub oak. The surface outside these dunal sands slopes west and east, with the slight formation of shallow drainages to the west. This area contains minimal floral cover and visibility exceeds 80 percent. Surface visibility on dunal surfaces is limited to less than 50 percent, given extensive cover by flora. The present flora is dominated by shinnery scrub oak less than 30 cm in height, with some mesquite, *Sporobolus* sp., sagebrush, broom snakeweed, and a few soaptree yucca (*Yucca elata*). The surface sediment is light brown sand with a trace of rounded gravel. These surface inclusions are only in interdunal areas. Minimal surface disturbance consists of grazing by cattle. The site measures roughly 70 m south/north x 39 m east/west.

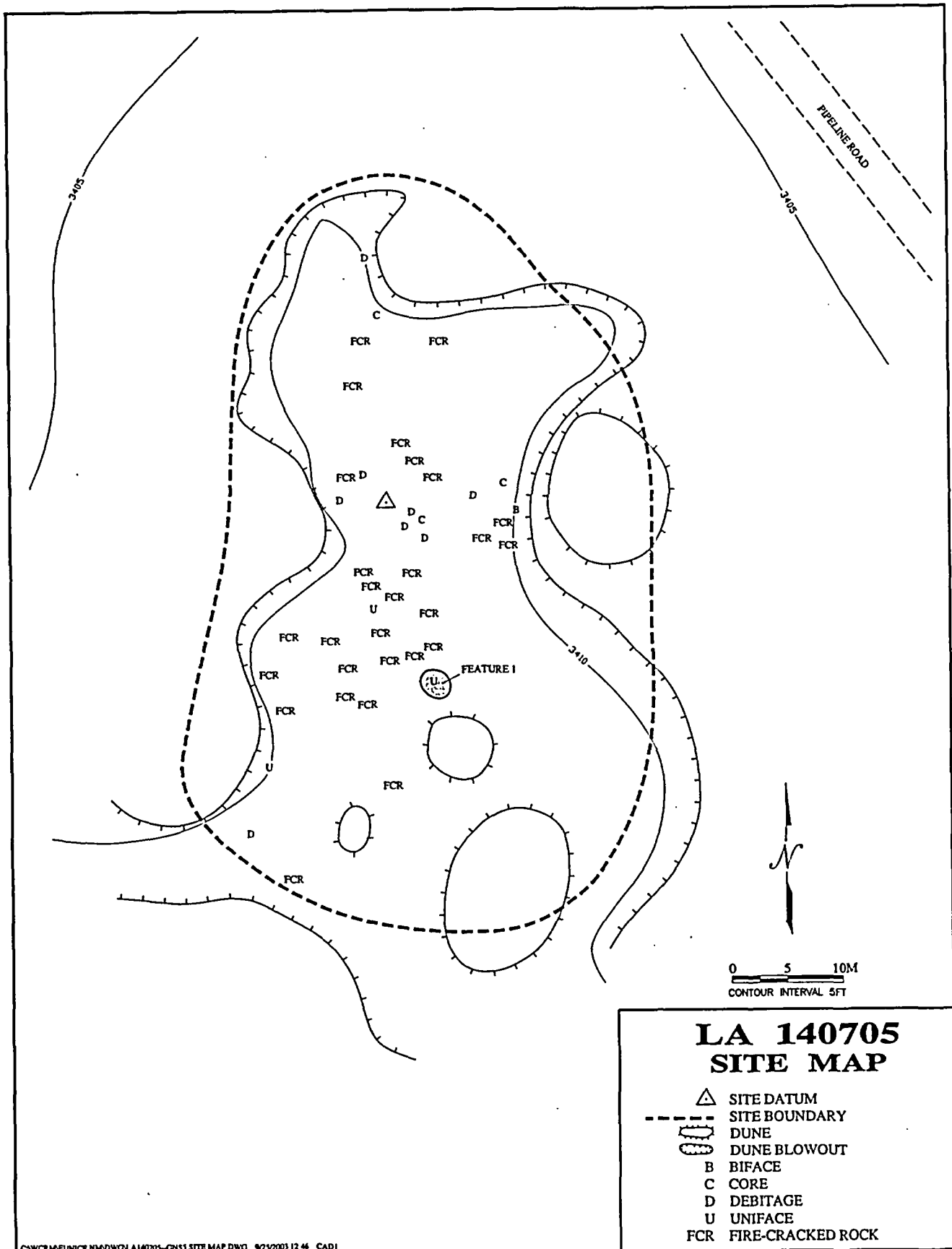


Figure 10. Site map, LA 140705.

One thermal feature was identified on this site. Feature 1 consists of a 2.0 m diameter disarticulated cluster of 13 cobble-sized, fire-cracked limestone and one unifacially shaped tool fragment of chalcedony. The feature was tested with a trowel and subsurface cultural evidence was lacking.

Cultural material includes 14 lithic artifacts and an extensive, low-density scatter of fire-cracked rock. The lithic artifacts include eight pieces of debitage, two cores, three unifacially shaped tools, and one Stage II biface. Most of the lithic artifacts were found in the central portion of the site. Debitage includes all stages of reduction, with secondary flakes the most common. Seven flakes of fine-grained material (white chert and milky white chalcedony) and one secondary flake of coarse-grained limestone were observed. The flakes range from 0.4 to 3.7 cm in length, 0.3 to 2.7 cm in width, and 0.1 to 1.4 cm in thickness. The largest piece is the limestone flake. Cores include one multifaceted, exhausted core of chalcedony and one of white chert; they measure from 2.5 to 4.0 cm in length, 2.0 to 3.5 cm in width, and 2.0 to 3.0 cm in thickness. The Stage II biface of white chert measures 2.6 x 2.4 cm x 0.8 cm. One of the unifacially shaped tools includes a large limestone chopper measuring 16 x 14 x 6 cm. Another is a quartzite pebble measuring 6.0 x 3.5 x 2.5 cm. The final unifacially shaped tool is a steep-sided, marginally shaped, chalcedony fragment found in Feature 1. The piece measures roughly 2.5 x 1.8 x 0.7 cm. Fire-cracked limestone was recorded throughout the site with a scattering northwest of Feature 1 and another in the north-central portion of the site. The scatter near Feature 1 may represent discard from the feature, and the scattered pieces throughout the site may indicate the presence of subsurface thermal features.

LA 140705 is a small, prehistoric camp in fair condition with one thermal feature and a low- to moderate-density scatter of lithic artifacts. Feature 1 lacks subsurface deposits. Scattered thermal materials in other areas and eroding from dunal sands containing the interdunal areas indicate that additional thermal features were either once present or may still be present below the modern ground surface. The site likely represents multiple-use episodes and possibly multiple components, although lack of diagnostic artifacts precludes temporal assignment.

Analysis of the artifacts indicates that manufacture and refurbishment of lithic tools and expedient utilization of the materials likely occurred in conjunction with the feature(s). Lithic artifacts may provide data regarding activities in association with the cultural feature(s).

Condition: The site is in fair condition with minimal surface disturbance. The area is used for cattle grazing.

Expected Project Impacts: The access road into the proposed facility will impact this site.

Significance and National Register Eligibility: The remains on this site could provide data significant to the prehistory of the region. The presence of a thermal feature and the potential for additional thermal features suggest that LA 140705 could provide chronological data and subsistence remains. Lithic artifacts could provide data regarding activities associated with the feature and other potential features. LA 140705 is recommended eligible for nomination to the NRHP under criterion (d), which identifies sites "that have yielded, or may be likely to yield, information important in prehistory or history" (National Park Service [NPS] 1995:2). In applying the criterion to archaeological sites, the NPS (1995:21) states that

Criterion D most commonly applies to properties that contain or are *likely* to contain information bearing on an important archeological research question. The property must have characteristics suggesting the likelihood that it possesses configurations of artifacts,

soil strata, structural remains, or other natural or cultural features that make it possible to do the following:

- Test a hypothesis or hypotheses about events, groups, or processes in the past that bear on important research questions in the social or natural sciences or the humanities; or
- Corroborate or amplify currently available information suggesting that a hypothesis is either true or false; or
- Reconstruct the sequence of archeological cultures for the purpose of identifying and explaining continuities and discontinuities in the archeological record for a particular area.

Recommendations: Avoid if possible. If avoidance is not feasible, a mitigation plan will need to be developed and implemented.

Site Number: LA 140706

Temporary Number: GNS 6

Cultural/Temporal Affiliation: Unknown prehistoric

Site Type: Camp

Site Description: LA 140706 is a small, prehistoric campsite situated in mesquite/scrub oak dunal terrain southeast of a ridge top where a gravel pit is currently located (and is north of the project area) (see Figure 4; Figure 11). Cultural evidence of the site is entirely located in two depressions 0.5 to 1.5 m below the surrounding surfaces. These areas contain minimal floral cover, and visibility on these surfaces exceeds 80 percent. Surface visibility on dunal surfaces is limited to less than 50 percent, given extensive cover by flora in the area. The present flora is dominated by shinnery scrub oak less than 30 cm in height with some mesquite, *Sporobolus* sp. grasses, sagebrush, and a few soap tree yucca (*Yucca elata*). Surface sediment is light brown sand, with a trace of rounded gravel only in depressions. Minimal surface disturbance consists of grazing by cattle. The site extends roughly 56 m east/west x 39 m north/south.

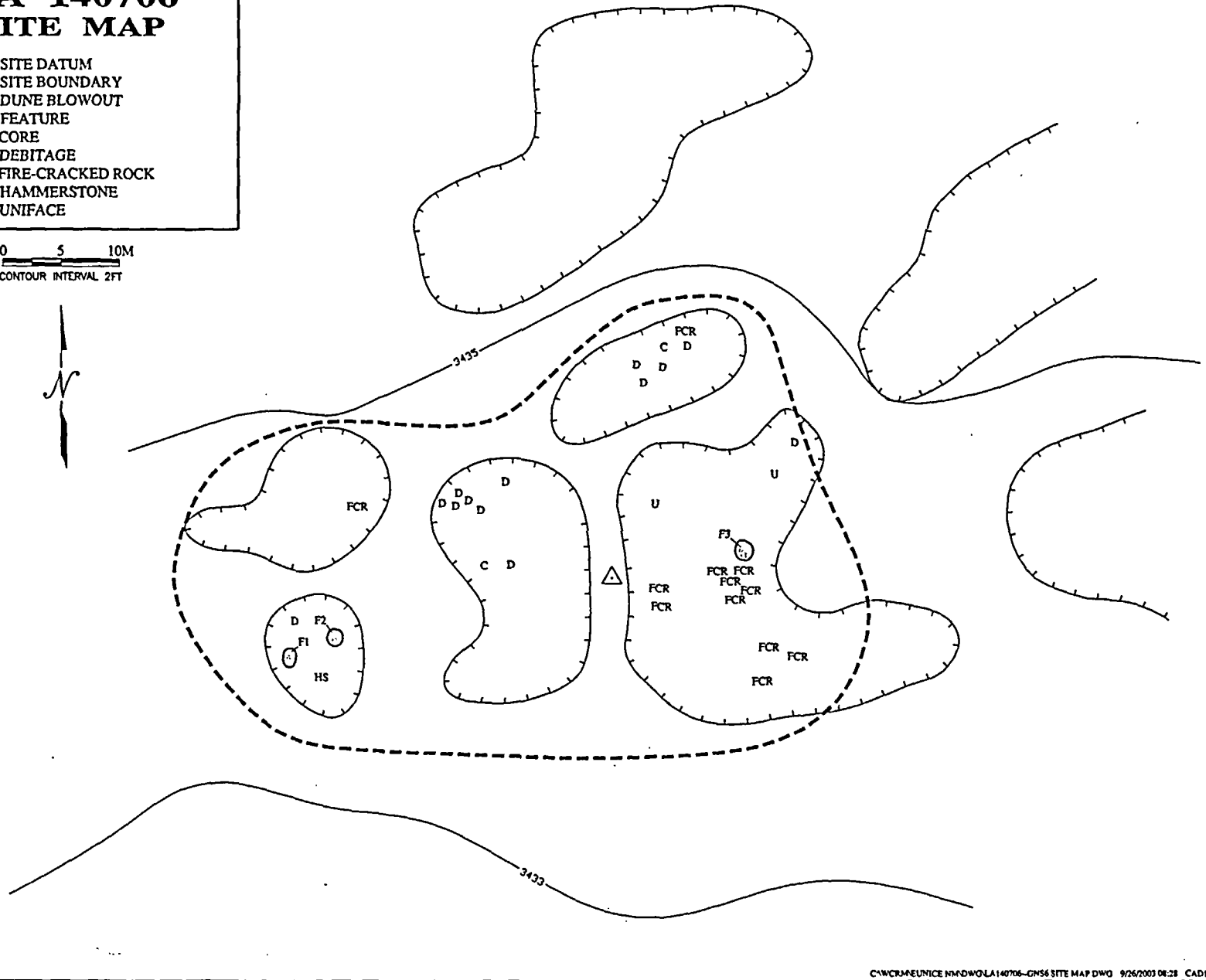
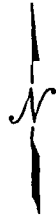
Three thermal features were identified on the surface of this site. Features 1 and 2 were found in the western portion, and Feature 3 is in the southeastern portion of the site. The features are roughly 50 cm diameter charcoal stains barely exposed on the surface. Total size of each could not be determined. Each feature was probed with a trowel and determined to contain intact subsurface deposits > 10 cm below the modern ground surface. These deposits include charcoal chunks that could provide absolute chronological control. In Feature 3, the charcoal stain descends within a rodent burrow. The presence of the charcoal-stained sediments and charcoal within this burrow indicates that a cultural feature was once present in this area or may still be present below the present ground surface.

Cultural materials include 13 pieces of debitage, two cores, two unifacially shaped tools, and scattered fire-cracked limestone. The materials are scattered over the surface, with slight clustering of the debitage in the north-central and northeastern portions of the site. Debitage is of white and gray chert and some chalcedony; size ranges from 0.5 to 1.5 cm in length, 0.3 to 1.3 cm in width, and 0.1 to 0.5 cm in

LA 140706 SITE MAP

- △ SITE DATUM
- - - SITE BOUNDARY
- DUNE BLOWOUT
- F FEATURE
- C CORE
- D DEBITAGE
- FCR FIRE-CRACKED ROCK
- HS HAMMERSTONE
- U UNIFACE

0 5 10M
CONTOUR INTERVAL 2FT



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Figure 11. Site map, LA 140706.

thickness. Most are incomplete flakes with lateral edges, terminations, or platforms missing. Complete flakes contain platforms that are primarily single-facet and unprepared. A few lipped platforms or pressure flakes were recorded. Debitage includes eight secondary and five tertiary flakes. Cores are of white chert and range from 1.9 to 2.6 cm in length, 1.5-2.1 cm in width, 0.8-0.9 cm in thickness. Both are the exhausted remains of multifaceted core reduction. The unifacially shaped tools include one red quartzite piece measuring > 10 x > 5 x 2.5 cm thick and a white quartzite piece of similar size. These expedient tools were found in the eastern portion of the site. Damaged edges from use wear is not readily observable on the pieces. The pieces of fire-cracked rock were recorded in the south-central portion of the site and may represent discard or scattered remains from the identified thermal features.

LA 140706 is in good condition with three thermal features and a low-density scatter of lithic artifacts. The presence of more than a single cultural feature suggests that the site represents more than one cultural occurrence and may well represent multiple prehistoric components. The site lacks temporally diagnostic artifacts and is therefore unassigned to any identified components in the region. Artifacts recorded on the surface include manufacturing items and expedient tools.

LA 140706 contains absolute chronological materials within three thermal features. The features are all charcoal stains and likely represent activities associated with occupation of the region. These charcoal-stained features may also contain subsistence remains.

Condition: The site is in good condition with minimal surface disturbance. The area is used for cattle grazing.

Expected Project Impacts: None

Significance and National Register Eligibility: The remains on this site may provide data significant to the prehistory of the region. Site LA 140706 contains three thermal features with charcoal-stained sediment and possibly chronological data. Subsistence remains may be present. Lithic artifacts could provide data regarding activities associated with the features. LA 140706 is recommended eligible for nomination to the NRHP under criterion (d), which identifies sites "that have yielded, or may be likely to yield, information important in prehistory or history" (National Park Service [NPS] 1995:2). In applying the criterion to archaeological sites, the NPS (1995:21) states that

Criterion D most commonly applies to properties that contain or are *likely* to contain information bearing on an important archeological research question. The property must have characteristics suggesting the likelihood that it possesses configurations of artifacts, soil strata, structural remains, or other natural or cultural features that make it possible to do the following:

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- Corroborate or amplify currently available information suggesting that a hypothesis is either true or false; or
- Reconstruct the sequence of archeological cultures for the purpose of identifying and explaining continuities and discontinuities in the archeological record for a particular area.

Recommendations: Avoid if possible. If avoidance is not feasible, a mitigation plan will need to be developed and implemented.

Site Number: LA 140707

Temporary Number: GNS 7

Cultural/Temporal Affiliation: Unknown prehistoric

Site Type: Camp

Site Description: LA 140707 is a small, prehistoric campsite situated in mesquite/scrub oak dunal terrain southeast of a ridge top where a gravel pit is currently located (and is north of the project area) (see Figure 4; Figure 12). Cultural evidence of the site is entirely located in two depressions 1.0 to 1.5 m below the surrounding surface. These depressions contain minimal floral cover, and visibility on these surfaces exceeds 80 percent. Surface visibility on dunal surfaces is limited to less than 50 percent, given extensive cover by flora in the area. The present flora is dominated by shinnery scrub oak less than 30 cm in height, with some mesquite, *Sporobolus* sp., sagebrush, and a few soaptree yucca (*Yucca elata*). The surface sediment is light brown sand with a trace of rounded gravel only in depressions. Minimal surface disturbance consists of grazing by cattle. The site measures roughly 55 m east/west x 35 m north/south.

No cultural features were identified on the modern ground surface. The presence of thermal materials eroding from dunal sediments forming the boundaries of this site indicates a potential for buried thermal features or at least indicates that thermal features were once present on this site.

The cultural material recorded on the surface includes 13 pieces of debitage, three cores, a utilized flake, and some scattered fire-cracked rock. The majority of the lithic artifacts are concentrated in the western depression, eroding from dunal sediments forming the eastern boundary of this depression. A low-density scatter of material is present in the eastern depression, with a few fire-cracked rocks eroding from dunal sediments forming the northern boundary of this depression. Debitage includes six white chert secondary flakes, one gray/purple chert secondary flake, one black chert bipolar reduced pebble, four chalcedony secondary flakes, and a tan chert primary flake. Debitage ranges from 0.8 to 1.6 cm long, 0.4 to 1.2 cm wide, and 0.2 to 0.5 cm thick. The three cores are all multifaceted, exhausted, white chert pebbles with some cortex on each piece; they range from 1.3 to 2.4 cm long, 1.0 to 2.0 cm wide, and 0.8 to 1.5 cm thick. The single utilized flake is the south-central portion of the site and is a piece of purple quartzite. The utilized edge is convex. The piece was initially a mano and later utilized as raw material to produce expedient tools. The scattered thermal material on this site is eroding from dunal sediments, indicating good potential for buried, intact, thermal features.

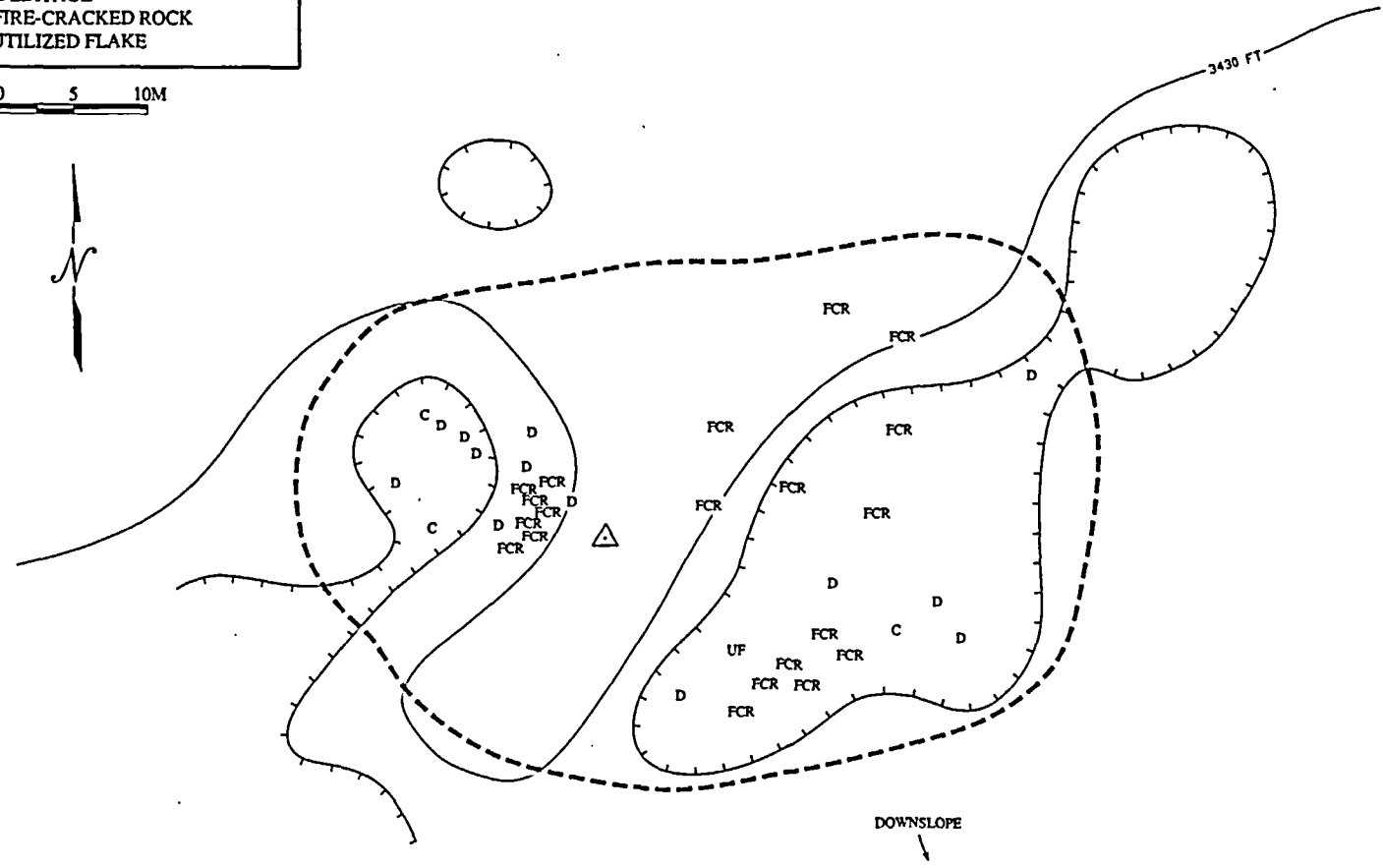
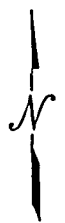
LA 140707 is a small, prehistoric camp in fair condition with a low-density scatter of lithic artifacts. The presence of cultural materials over a fairly large area indicates that the site may represent more than a single use and possibly several prehistoric components. The site lacks diagnostic artifacts and is therefore unassigned temporally.

LA 140707 has potential for buried, intact, thermal features, which may provide absolute chronological materials and subsistence remains. Lithic artifacts recorded on the surface include manufacturing items and expedient tools.

LA 140707 SITE MAP

- △ SITE DATUM
- - - SITE BOUNDARY
- DUNE BLOWOUT
- C CORE
- D DEBITAGE
- FCR FIRE-CRACKED ROCK
- UF UTILIZED FLAKE

0 5 10M



26

Figure 12. Site map, LA 140707.

Condition: The site is in fair condition with minimal surface disturbance. The area is used for cattle grazing.

Expected Project Impacts: None

Significance and National Register Eligibility: The remains on this site may provide data significant to the prehistory of the region. Although no features were observed, thermal material eroding from dunes indicates the potential for buried features on the site. Subsistence remains and chronological data could be present. Lithic artifacts could provide data regarding activities associated with potential features. Site LA 140707 is recommended potentially eligible for nomination to the NRHP under criterion (d), which identifies sites "that have yielded, or may be likely to yield, information important in prehistory or history" (National Park Service [NPS] 1995:2). In applying the criterion to archaeological sites, the NPS (1995:21) states that

Criterion D most commonly applies to properties that contain or are *likely* to contain information bearing on an important archeological research question. The property must have characteristics suggesting the likelihood that it possesses configurations of artifacts, soil strata, structural remains, or other natural or cultural features that make it possible to do the following:

- Test a hypothesis or hypotheses about events, groups, or processes in the past that bear on important research questions in the social or natural sciences or the humanities; or
- Corroborate or amplify currently available information suggesting that a hypothesis is either true or false; or
- Reconstruct the sequence of archeological cultures for the purpose of identifying and explaining continuities and discontinuities in the archeological record for a particular area.

Recommendations: Avoid if possible. If avoidance is not feasible, a mitigation plan will need to be developed and implemented.

Isolated Occurrences

Thirty-six isolated occurrences (IOs) were recorded during the cultural resource survey (Table 2; Figure 13). The IOs consist of lithic artifacts or thermally altered material, with the exception of two 1911 United States General Land Office bench marks. IO 4 was voided when it was incorporated into site LA 140702.

SUMMARY AND RECOMMENDATIONS

From September 10 through 12, 2003, WCRM personnel performed a 543-acre intensive cultural resource inventory on land under the jurisdiction of the New Mexico State Land Office slated for the National Enrichment Facility. Seven sites and 35 isolated occurrences were located in dunal settings. These resources and occurrences likely represent multiple activities associated with procurement and processing of resources during prehistoric utilization of the region.

The sites and isolated occurrences are predominantly within 5.0 to 30.0 m diameter depressions in areas of extensive dunal sands. Associated subsurface cultural evidence with all sites and isolated occurrences would be expected. Three sites (LA 140701–LA 140703) are recommended not eligible to the NRHP and no further work is required. Three of the sites are recommended eligible for nomination to the NRHP (LA 140704, LA 140705, and LA 140706); LA 140707 is recommended potentially eligible. These sites all contain the potential for intact feature remains with associated subsistence remains that could provide chronological data. According to the current development plan, site LA 140705 is located in the proposed access road to the facility; the remaining eligible sites are not likely to be impacted by construction. Should mitigation of impacts be necessary to any of the four eligible and potentially eligible sites, a phased approach to data collection should be implemented. Mitigation could consist of avoidance or by examination of subsurface content and if necessary, larger scale data collection based on the results of the examination.

Table 2. Isolated Occurrences Located during Survey.

IO No.	UTM Zone 13		Description
	East	North	
1	680773	3590237	1 lithic flake: Incomplete, chalcedony, tertiary, no platform, 1.3 x 0.9 x 0.2 cm
2	680969	3590287	1 mano: Two-sided, wedge-shaped sandstone, 16.0 x 11.0 x 3.7 cm
3	680874	3590318	1 FCR: Limestone fire-cracked rock, <5.0, 2.5 cm
4	-	-	VOID–Incorporated into LA 140702
5	680706	3590327	1 lithic flake: Complete, pink chert, secondary, single-facet platform, 1.2 x 1.6 x 0.4 cm
6	680714	3590484	1 lithic flake: Incomplete, white chert, secondary, no platform, 1.7 x 0.7 x 0.4 cm
7	680862	3590390	3 lithic flakes: Incomplete, white chert, tertiary, single-facet platforms, 1.3-1.7 x 0.7-1.1 x 0.2-0.5 cm
8	680748	3590671	2 lithic flakes, 1 FCR: 1 incomplete chalcedony tertiary flake with single-facet platform, 1.2 x 0.8 x 0.2 cm; 1 incomplete white chert secondary flake with single-facet platform, 3.4 x 1.8 x 0.5 cm; 1 limestone fire-cracked rock, <5.0 cm
9	680735	3590687	5 FCR: 5 fire-cracked rock, 5.0 cm; in 3.0 m diameter area
10	680743	3590694	1 uniaxially shaped tool: White chert uniaxially shaped tool fragment, 3.5 x 2.6 x 0.9 cm
11	680768	3590649	1 lithic flake: Incomplete, chalcedony, tertiary, no platform, 0.7 x 0.5 x 0.1 cm
12	680772	3590671	1 lithic flake: Incomplete, white chert, secondary, no platform, 1.6 x 0.8 x 0.6 cm
13	680808	3590674	1 lithic flake: Complete, white chert, secondary, single-facet platform, 0.8 x 1.4 x 0.5 cm
14	681124	3590565	1 lithic flake, 1 FCR: Complete, milky white chert, tertiary, lipped-platform flake, 1.4 x 0.8 x 0.1 cm; 1 red sandstone fire-cracked rock, 10 cm in diameter
15	681022	3590599	1 lithic flake, 2 FCR: Incomplete, white chert, secondary, no platform, 2.5 x 2.5 x 0.6 cm; 2 limestone fire-cracked rocks, <5.0 cm diameter
16	681035	3590580	1 mano, 2 FCR: 1 red sandstone single-sided mano, 12.0 x 8.0 x 3.0 cm; 1 red sandstone fire-cracked rock, 12.0 x 10.0 cm; and 1 limestone fire-cracked rock, <10.0, >5.0 cm
17	680779	3590716	2 lithic flakes, 1 FCR: 1 complete, white chert, secondary, with single-facet platform, 1.4 x 0.8 x 0.4 cm; 1 incomplete yellow/white chert, secondary, with single-facet platform, 1.2 x 0.8 x 0.3 cm; 1 limestone fire-cracked rock, >5.0, <10.0 cm

Table 2. Isolated Occurrences Located during Survey (cont.).

IO No.	UTM Zone 13		Description
	East	North	
18	680673	3590871	2 mano fragments, 2 FCR: 2 sandstone mano fragments, >5.0, <10.0 cm; 2 limestone fire-cracked rocks, >5.0, <10.0 cm in a 5.0 m diameter area
19	681015	3590785 (SW)	Historic barbed wire fence: Possible containment fenced-in area in NE portion of Section 32; barbed wire fence includes juniper post and flat triangular barbs
	681122	3590763 (SE)	
	681121	3590942 (NE)	
	681010	3590942 (NW)	
20	679988	3589837	1 metate fragment, 2 lithic flakes, 2 FCR: 1 sandstone basin metate fragment, 12.0 x 8.0 x 2.0 cm; 2 incomplete white chert tertiary flakes with single-facet platforms, 1.2-1.3 x 0.8-0.9 x 0.2 cm; 2 limestone fire-cracked rocks, <5.0 cm. All in a 10 m diameter area
21	679940	3589827	1 metate fragment: 1 sandstone basin metate fragment, 17.0 x 15.0 x 5.0 cm
22	679753	3589927	1 lithic flake: Complete, white chert, tertiary, single-facet platform, 1.3 x 0.7 x 0.1 cm
23	679893	3590041	1 mano/metate fragment: 1 sandstone mano/metate fragment, 14.0 x 8.0 x 5.0 cm
24	680283	3590061	1 unifacially shaped tool: 1 white chert, unifacially shaped, tool fragment, 3.2 x 1.5 x 0.6 cm
25	679590	3590595	2 lithic flakes: 1 complete and 1 incomplete secondary white chert flakes, both with single-facet platforms, 1.6-1.9 x 1.3-1.1 x 0.3-0.6 cm
26	679995	3590518	1 lithic flake: Complete white chert tertiary flake with single-facet platform, 0.8 x 0.4 x 0.1 cm
27	679647	3590819	1 lithic flake, 1 core, 1 marginally retouched lithic tool: 1 complete, white chert, primary flake with single-facet platform, 2.6 x 1.5 x 0.4 cm; 1 white chert, multifaceted core, 2.8 x 1.7 x 1.2 cm; 1 marginally retouched, white chert, lithic tool, 3.8 x 2.0 x 0.8 cm
28	679670	3590798	1 lithic flake, 8 FCR: 1 purple quartzite, incomplete, secondary flake with single-facet platform, 3.5 x 2.8 x 0.8 cm; 8 limestone fire-cracked rocks, >5.0, <15.0 cm, in a 3.0 m diameter area
29	679901	3590821	5 lithic flakes, 2 FCR: 4 incomplete, white chert, secondary flakes with single-facet platforms and 1 complete, chalcedony, tertiary flake, 0.5-1.3 x 0.3-1.0 x 0.1-0.5 cm; 2 limestone fire-cracked rocks, >5.0, <10.0 cm. All in a 3.0 m diameter area
30	679923	3590820	6 lithic flakes: 5 incomplete, 1 complete white chert tertiary and secondary flakes, 2 with single-facet platforms, 0.3-1.4 x 0.2-1.0 x 0.1-0.3 cm
31	680152	3590698	2 lithic flakes: 1 complete, white chert, tertiary flake with single-facet platform, 1.2 x 0.5 x 0.2 cm; 1 incomplete, pink chert, tertiary flake with single-facet platform, 2.3 x 1.0 x 0.4 cm
32	680151	3590713	1 lithic flake: 1 incomplete, chalcedony, secondary flake with single-facet platform, 2.3 x 1.4 x 0.4 cm
33	680166	3590701	5 FCR: 5 limestone fire-cracked rocks, >5.0, <15.0 cm, in a 10.0 x 5.0 m area
34	680026	3590894	6 FCR: 6 limestone fire-cracked rocks, >5.0, <15.0 cm, in a 10.0 x 5.0 m area
35	679505	3590914	Bench mark: US General Land Office Penalty for Removal \$250 T21S R38E S30/S29 over S31/S32 - 1911
36	681121	3590942	Bench mark: US General Land Office Penalty for Removal \$250 T21S R38E S29/S28 over S32/S33 - 1911

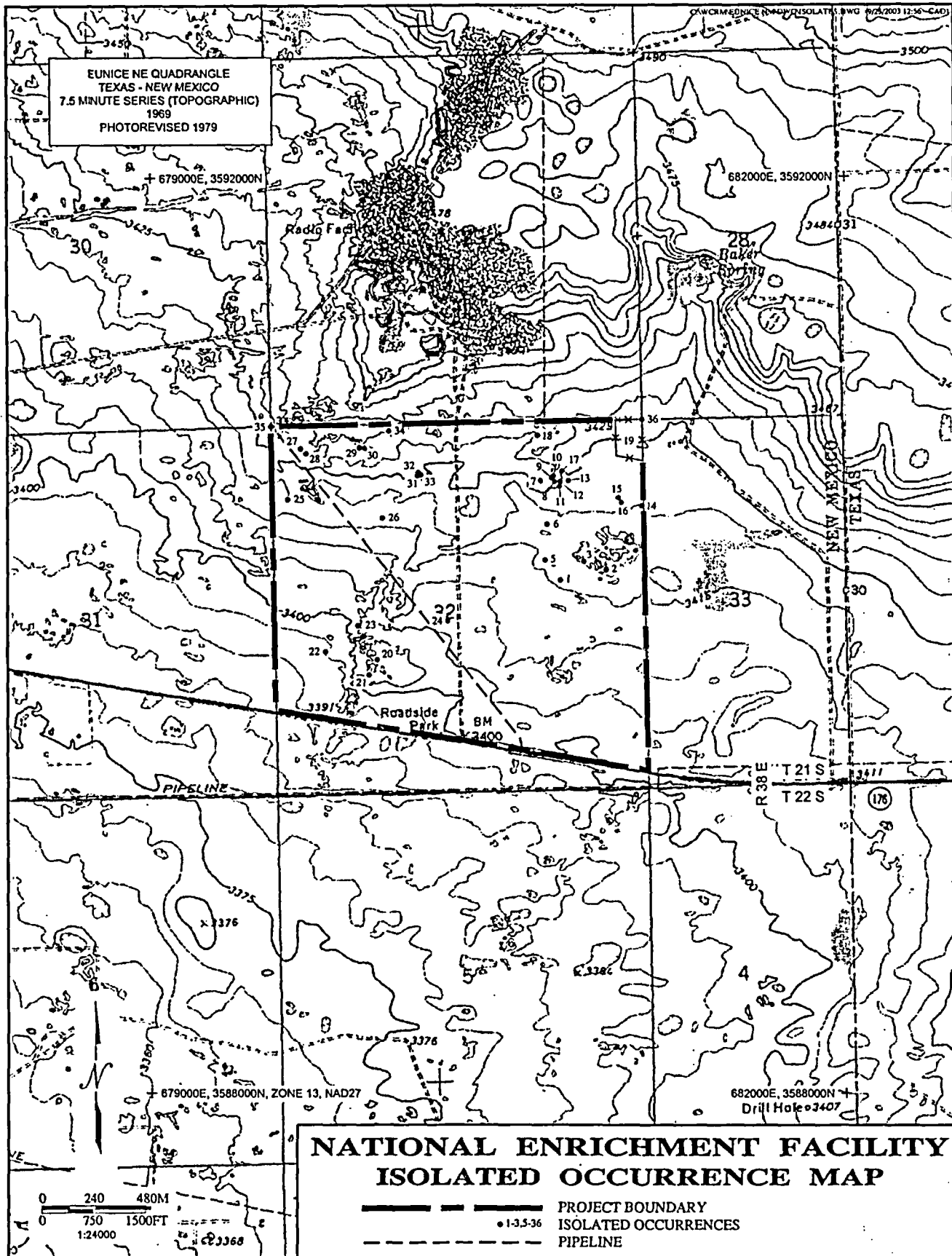


Figure 13. Isolated occurrence location map.

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