## III. SPECIES-SPECIFIC INFORMATION (including Pertinent Federally-Threatened and Endangered Species)

Cactus Ferruginous Pygmy-owl:

***1. Does the proposed project site occur within Survey Zone 1 for the cactus ferruginous pygmy-owl?***

No.

***2. Has the proposed project site been surveyed for pygmy-owls?***

***a. If yes, disclose the dates when surveys were done and provide a summary of the results.***

***b. If no, are surveys planned in the future?***

No. The project site has not been surveyed for pygmy-owls; there are no surveys planned in the future.

Western Burrowing Owl:

1. ***Does the proposed project site occur within the Priority Conservation Area for the Western Burrowing Owl?***

   No.

***2. Has the proposed project site been surveyed for burrowing owls?***

***a. If yes, disclose the dates when surveys were done and provide a summary of the results.***

***b. If no, are surveys planned in the future?***

No. The project site has not been surveyed for Western Burrowing Owls; there are no surveys planned in the future.

Pima Pineapple Cactus

***1. Does the proposed project site occur within the Priority Conservation Area for the Pima pineapple cactus?***

Yes.

***2. Have Pima pineapple cactus been found on the proposed project site?***

No. No Pima pineapple cacti have been found on the project site.

***3. Has the proposed project site been surveyed for Pima pineapple cactus?***

***a. If yes, disclose the date when surveys were done and provide a summary of the results.***

***b. If no, are surveys planned in the future?***

No. The project site has not been surveyed for Pima pineapple cactus; no surveys are planned in the future.

Needle-Spined Pineapple Cactus:

***1. Does the proposed project site occur within the Priority Conservation Area for the needle-spined pineapple cactus?***

No.

***2. Have needle-spined pineapple cactus been found on the proposed project site?***

No needle-spined pineapple cactus have been found on the project site.

***3. Has the proposed project site been surveyed for needle-spined pineapple cactus?***

***a. If yes, disclose the date when surveys were done and provide a summary of the results.***

***b. If no, are surveys planned in the future?***

No. The project site has not been surveyed for needle-spined pineapple cactus; no surveys are planned in the future.

## IV. INVENTORY OF SAGUAROS

There are three saguaros on site. Two are over 6' tall, and one is under 6' tall. All are in viable condition. These saguaros will be transplanted on site in compliance with the NPPO.

## V. VEGETATIVE COMMUNITIES

There are two native vegetative communities on site. One community is Xeroriparian Habitat, classified as both Xeroriparian B and C by Pima County. This area is in the northern/north eastern portion of the site and is approximately 22% of the site.

The other vegetative community is categorized as Sonoran Desert Paloverde/Saguaro upland and is approximately 78% of the site. This area is dominated by creosote (Larrea tridentata) with barrel cacti (Ferocactus wislizeni). This community is essentially a "creosote flat" with occasional, but limited, occurrences of other native species.

(See Figure 2)

## VI. SUMMARY

This report presents a Biological Impact Report for the Sorrel Ridge Estates, an approximately 140-acre parcel located in southern Pima County. This Biological Impact Report, required as part of the rezoning request, presents responses to all questions set forth in the Pima County Development Services Biological Impact Report Guidelines, March 2010. The findings indicate that this site lies within known Pima pineapple cactus range. Any native plant survey done for the tentative plant/development plan phase should include a survey for Pima pineapple cacti on the subject property.

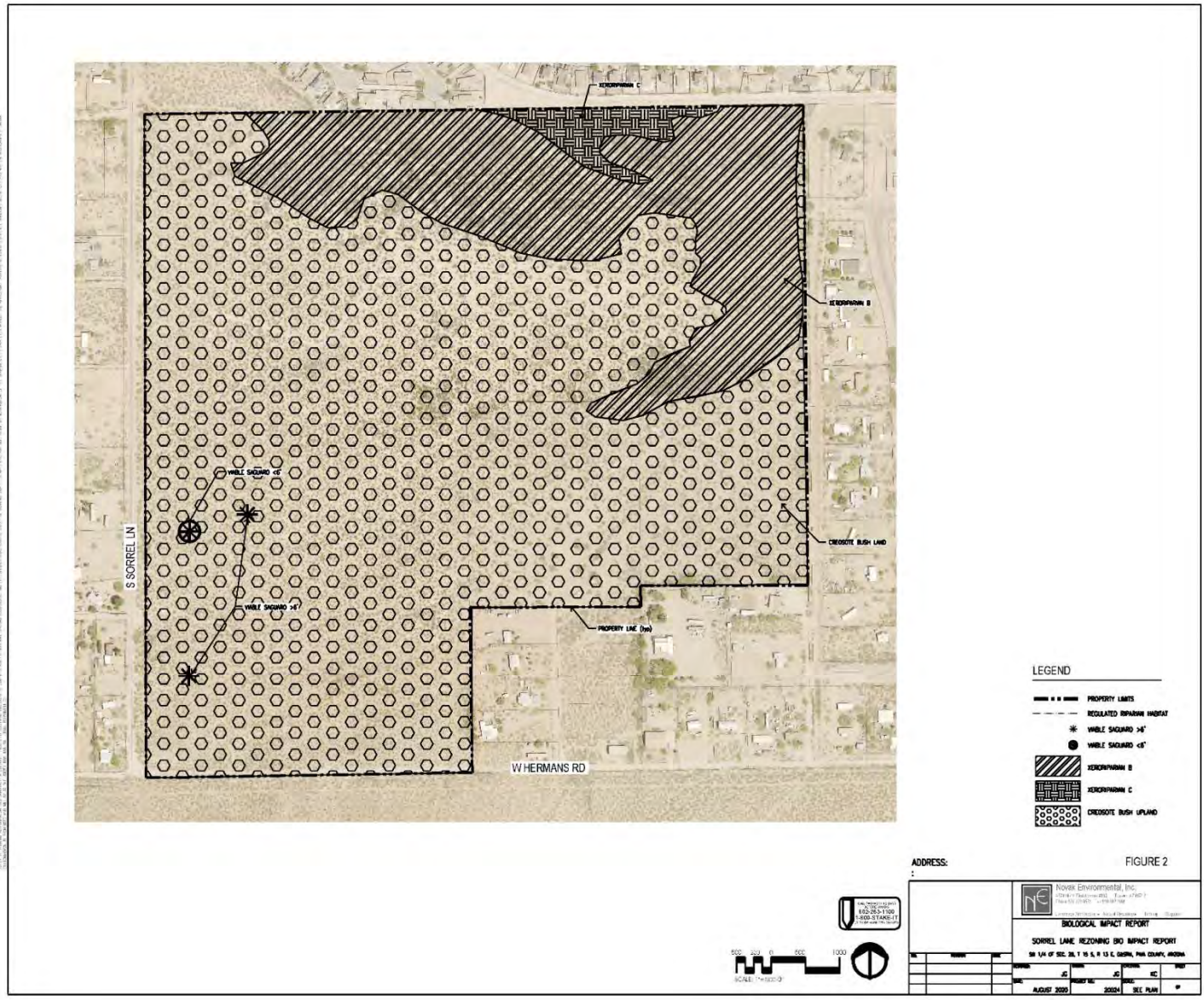

S SORREL LN
W HERMANS RD
PROPERTY LINE (typ)
CREOSOTE BUSH LAND
LEGEND
PROPERTY LIMITS
REGULATED RIPARIAN HABITAT
WABLE SAGUARO >6'
WABLE SAGUARO <6'
XERORIPARIAN B
XERORIPARIAN C
CREOSOTE BUSH UPLAND
ADDRESS:
FIGURE 2
Novak Environmental, Inc.
BIOLOGICAL IMPACT REPORT
SORREL LANE REZONING BIO IMPACT REPORT
AUGUST 2020
20024

**Figure 2**

# APPENDIX B:

# ARIZONA GAME AND FISH DEPARTMENT ONLINE REVIEW TOOL REPORT

# Arizona Environmental Online Review Tool Report

***Arizona Game and Fish Department Mission***
***To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.***

**Project Name:**
Sorrel Property Environmental Report

**User Project Number:**
4488A-Sorrel

**Project Description:**
proposed residential subdivision site analysis rezoning.

**Project Type:**
Development Within Municipalities (Urban Growth), Residential single dwelling and associated infrastructure, New construction

**Contact Person:**
Chris Ortiz y Pino

**Organization:**
Rick Engineering Company

**On Behalf Of:**
PIMA

**Project ID:**
HGIS-11551

***Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.***

**Disclaimer:**

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

**Locations Accuracy Disclaimer:**
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

**Recommendations Disclaimer:**

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   **Project Evaluation Program, Habitat Branch**
   **Arizona Game and Fish Department**
   **5000 West Carefree Highway**
   **Phoenix, Arizona 85086-5000**
   **Phone Number: (623) 236-7600**
   **Fax Number: (623) 236-7366**
   **Or**
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

# Sorrel Property Environmental Report

## USA Topo Basemap With Locator Map


Project Boundary

Buffered Project Boundary

Project Size (acres): 141.86

Lat/Long (DD): 32.1087 / -111.0418

County(s): Pima

AGFD Region(s): Tucson

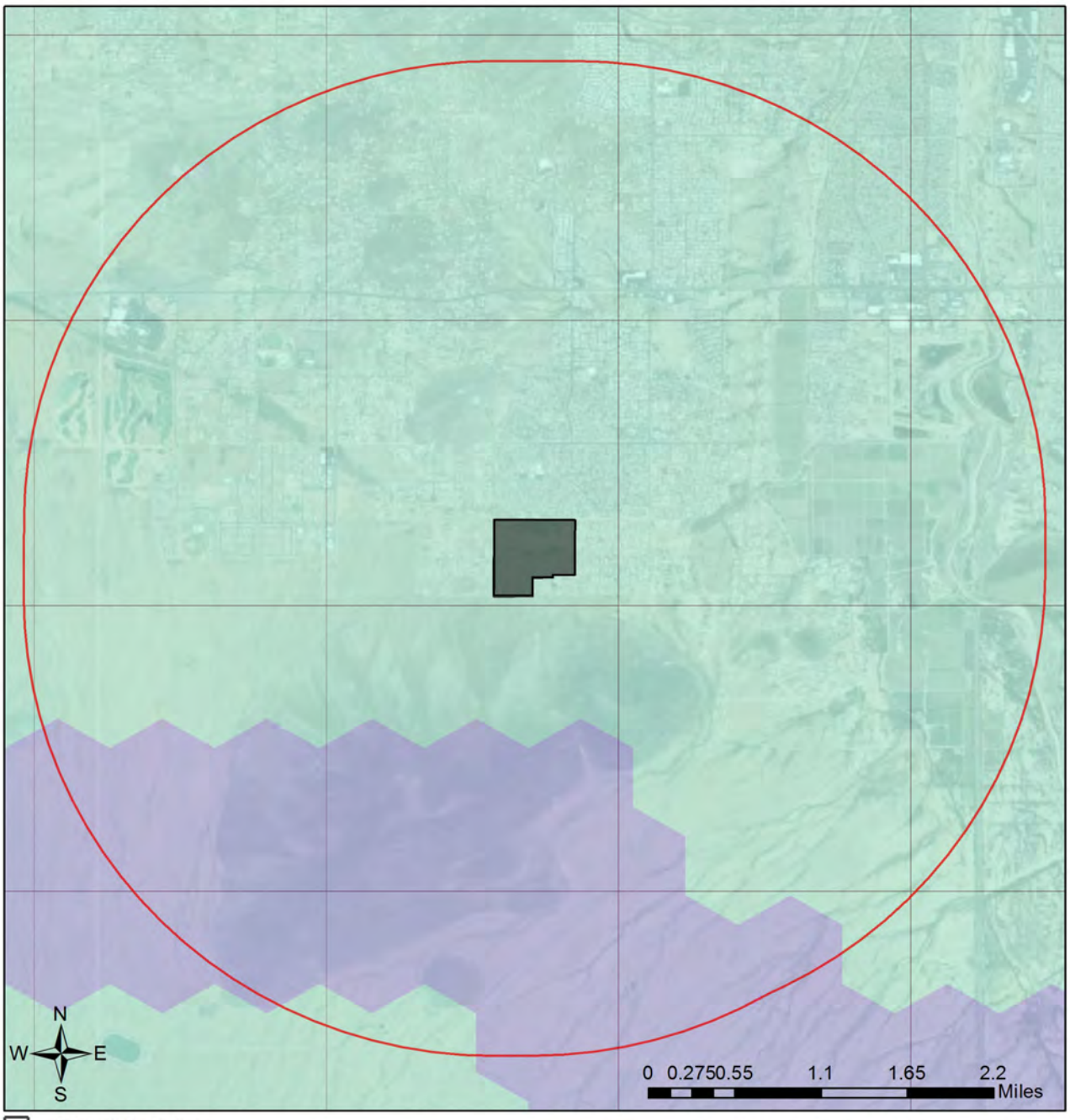
Township/Range(s): T15S, R13E

USGS Quad(s): SAN XAVIER MISSION


Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap

# Sorrel Property Environmental Report

## Web Map As Submitted By User



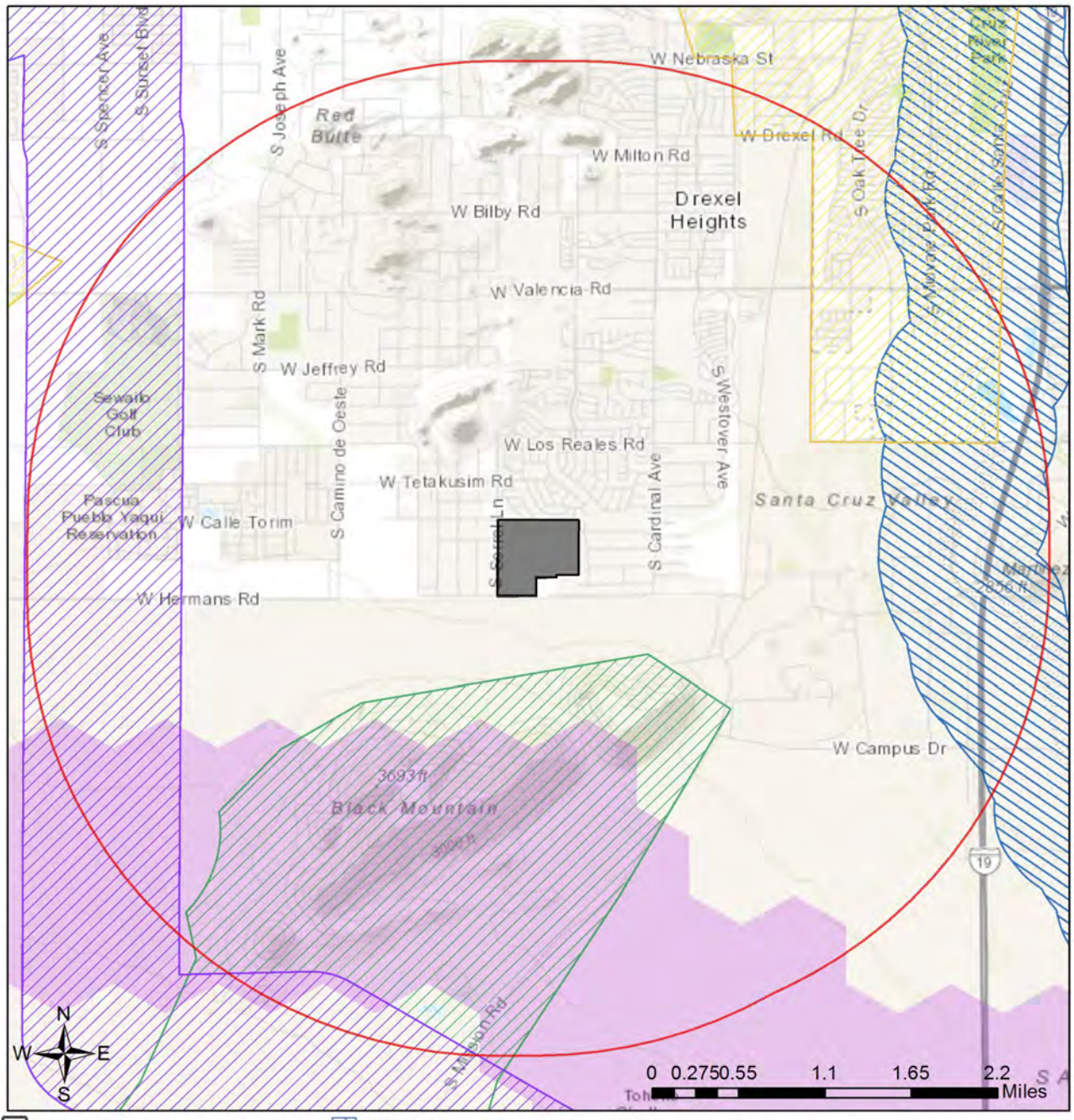

- Project Boundary
- Buffered Project Boundary
- Critical Habitat
- Important Connectivity Zones
- Wildlife Connectivity
- SGCN

Project Size (acres): 141.86
Lat/Long (DD): 32.1087 / -111.0418
County(s): Pima
AGFD Region(s): Tucson
Township/Range(s): T15S, R13E
USGS Quad(s): SAN XAVIER MISSION

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Arizona Game and Fish Department

# Sorrel Property Environmental Report

## Important Areas




- Project Boundary
- Buffered Project Boundary

**County Stakeholder Assessment**

- Wildlife Crossing Area
- Wildlife Movement Area - Diffuse
- Wildlife Movement Area - Landscape
- Wildlife Movement Area - Riparian/Wash
- Wildlife Connectivity
- Important Connectivity Zones
- Pinal County Riparian
- Critical Habitat
- Important Bird Areas

Project Size (acres): 141.86

Lat/Long (DD): 32.1087 / -111.0418

County(s): Pima

AGFD Region(s): Tucson

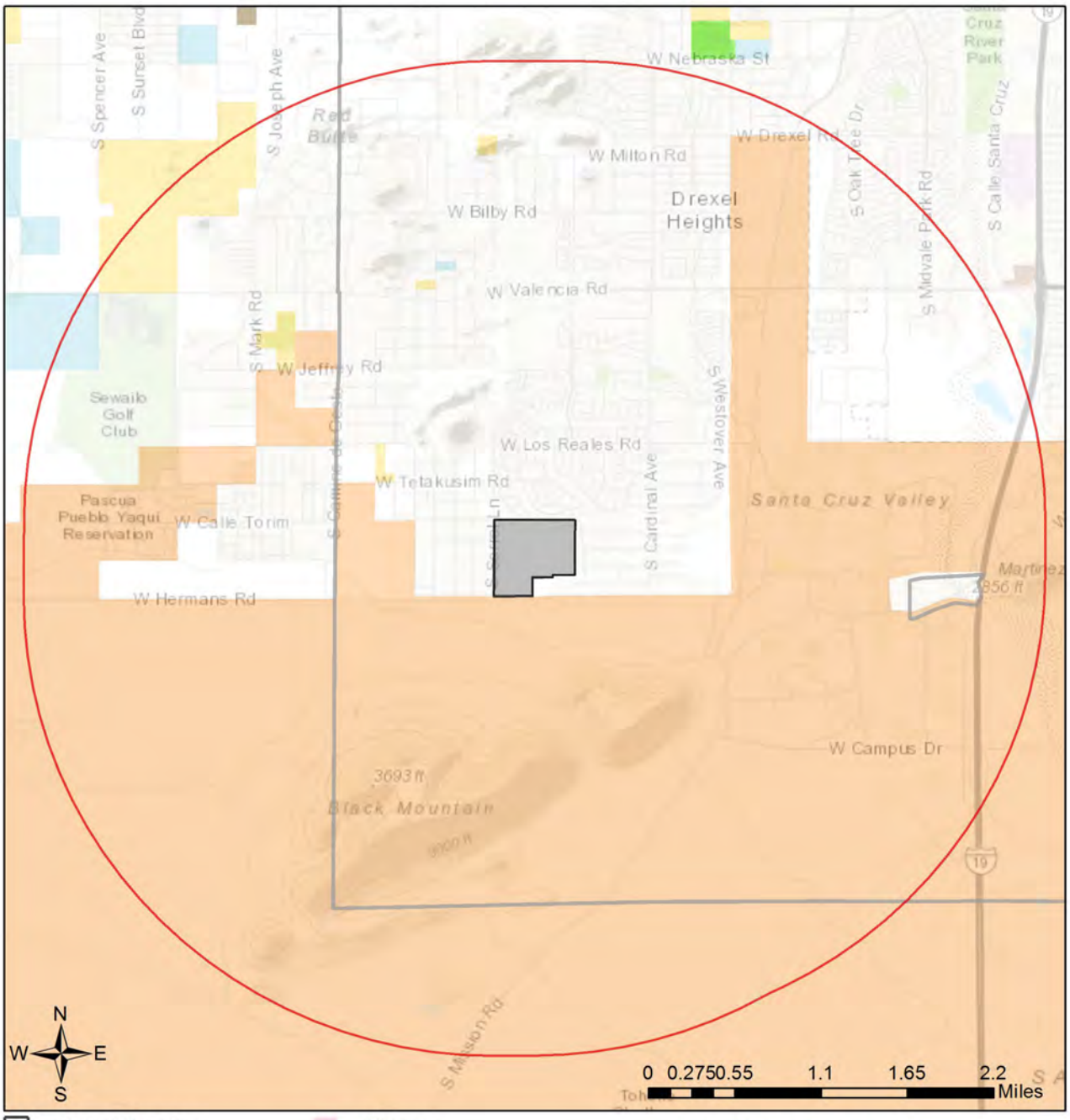
Township/Range(s): T15S, R13E

USGS Quad(s): SAN XAVIER MISSION

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

# Sorrel Property Environmental Report

## Township/Ranges and Land Ownership




- Project Boundary
- Buffered Project Boundary
- Township/Ranges

**Land Ownership**

- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge

Project Size (acres): 141.86
Lat/Long (DD): 32.1087 / -111.0418
County(s): Pima
AGFD Region(s): Tucson
Township/Range(s): T15S, R13E
USGS Quad(s): SAN XAVIER MISSION

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

**Special Status Species Documented within 3 Miles of Project Vicinity**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Athene cunicularia hypugaea | Western Burrowing Owl | SC | S | S | | 1B |
| Coryphantha scheeri var. robustispina | Pima Pineapple Cactus | LE | | | HS | |
| Gastrophryne olivacea | Western Narrow-mouthed Toad | | | S | | 1C |
| Mammillaria thornberi | Thornber Fishhook Cactus | | | | SR | |
| Myotis velifer | Cave Myotis | SC | | S | | 1B |
| Sonorella papagorum | Black Mountain Talussnail | | | | | 1B |
| Tumamoca macdougalii | Tumamoc Globeberry | | S | S | SR | |

*Note: Status code definitions can be found at* https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

**Special Areas Documented within the Project Vicinity**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| San Xavier Indian Reservation | San Xavier Indian Reservation | | | | | |

*Note: Status code definitions can be found at* https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

**Species of Greatest Conservation Need Predicted within the Project Vicinity based on Predicted Range Models**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Aix sponsa | Wood Duck | | | | | 1B |
| Ammospermophilus harrisii | Harris' Antelope Squirrel | | | | | 1B |
| Anthus spragueii | Sprague's Pipit | SC | | | | 1A |
| Antrostomus ridgwayi | Buff-collared Nightjar | | S | | | 1B |
| Aquila chrysaetos | Golden Eagle | BGA | | S | | 1B |
| Aspidoscelis stictogramma | Giant Spotted Whiptail | SC | S | | | 1B |
| Aspidoscelis xanthonota | Red-backed Whiptail | SC | S | | | 1B |
| Athene cunicularia hypugaea | Western Burrowing Owl | SC | S | S | | 1B |
| Calypte costae | Costa's Hummingbird | | | | | 1C |
| Chilomeniscus stramineus | Variable Sandsnake | | | | | 1B |
| Colaptes chrysoides | Gilded Flicker | | | S | | 1B |
| Coluber bilineatus | Sonoran Whipsnake | | | | | 1B |
| Corynorhinus townsendii pallescens | Pale Townsend's Big-eared Bat | SC | S | S | | 1B |
| Crotalus tigris | Tiger Rattlesnake | | | | | 1B |
| Crotaphytus nebrius | Sonoran Collared Lizard | | | | | 1B |
| Cynanthus latirostris | Broad-billed Hummingbird | | S | | | 1B |
| Dipodomys spectabilis | Banner-tailed Kangaroo Rat | | | S | | 1B |
| Empidonax wrightii | Gray Flycatcher | | | | | 1C |
| Euderma maculatum | Spotted Bat | SC | S | S | | 1B |
| Eumops perotis californicus | Greater Western Bonneted Bat | SC | | S | | 1B |

**Species of Greatest Conservation Need Predicted within the Project Vicinity based on Predicted Range Models**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Falco peregrinus anatum | American Peregrine Falcon | SC | S | S | | 1A |
| Glaucidium brasilianum cactorum | Cactus Ferruginous Pygmy-owl | SC | S | S | | 1B |
| Gopherus morafkai | Sonoran Desert Tortoise | CCA | S | S | | 1A |
| Haliaeetus leucocephalus | Bald Eagle | SC, BGA | S | S | | 1A |
| Heloderma suspectum | Gila Monster | | | | | 1A |
| Hypsiglena sp. nov. | Hooded Nightsnake | | | | | 1B |
| Incilius alvarius | Sonoran Desert Toad | | | | | 1B |
| Lasiurus blossevillii | Western Red Bat | | S | | | 1B |
| Lasiurus xanthinus | Western Yellow Bat | | S | | | 1B |
| Leopardus pardalis | Ocelot | LE | | | | 1A |
| Leptonycteris yerbabuenae | Lesser Long-nosed Bat | SC | | | | 1A |
| Lepus alleni | Antelope Jackrabbit | | | | | 1B |
| Macrotus californicus | California Leaf-nosed Bat | SC | | S | | 1B |
| Melanerpes uropygialis | Gila Woodpecker | | | | | 1B |
| Melospiza lincolnii | Lincoln's Sparrow | | | | | 1B |
| Melozone aberti | Abert's Towhee | | S | | | 1B |
| Micrathene whitneyi | Elf Owl | | | | | 1C |
| Micruroides euryxanthus | Sonoran Coralsnake | | | | | 1B |
| Myiarchus tyrannulus | Brown-crested Flycatcher | | | | | 1C |
| Myotis occultus | Arizona Myotis | SC | | S | | 1B |
| Myotis velifer | Cave Myotis | SC | | S | | 1B |
| Myotis yumanensis | Yuma Myotis | SC | | | | 1B |
| Nyctinomops femorosaccus | Pocketed Free-tailed Bat | | | | | 1B |
| Oreoscoptes montanus | Sage Thrasher | | | | | 1C |
| Oreothlypis luciae | Lucy's Warbler | | | | | 1C |
| Panthera onca | Jaguar | LE | | | | 1A |
| Peucaea carpalis | Rufous-winged Sparrow | | | | | 1B |
| Phrynosoma solare | Regal Horned Lizard | | | | | 1B |
| Phyllorhynchus browni | Saddled Leaf-nosed Snake | | | | | 1B |
| Progne subis hesperia | Desert Purple Martin | | | S | | 1B |
| Setophaga petechia | Yellow Warbler | | | | | 1B |
| Sonorella papagorum | Black Mountain Talussnail | | | | | 1B |
| Sphyrapicus nuchalis | Red-naped Sapsucker | | | | | 1C |
| Spizella breweri | Brewer's Sparrow | | | | | 1C |
| Tadarida brasiliensis | Brazilian Free-tailed Bat | | | | | 1B |
| Toxostoma lecontei | LeConte's Thrasher | | | S | | 1B |
| Vireo bellii arizonae | Arizona Bell's Vireo | | | | | 1B |
| Vulpes macrotis | Kit Fox | No Status | | | | 1B |

**Species of Economic and Recreation Importance Predicted within the Project Vicinity**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Callipepla gambelii | Gambel's Quail | | | | | |
| Callipepla squamata | Scaled Quail | | | | | 1C |
| Odocoileus hemionus | Mule Deer | | | | | |
| Pecari tajacu | Javelina | | | | | |
| Puma concolor | Mountain Lion | | | | | |
| Zenaida asiatica | White-winged Dove | | | | | |
| Zenaida macroura | Mourning Dove | | | | | |

**Project Type: Development Within Municipalities (Urban Growth), Residential single dwelling and associated infrastructure, New construction**

**Project Type Recommendations:**
Fence recommendations will be dependant upon the goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located on Wildlife Friendly Guidelines page, which is part of the WIldlife Planning button at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, https://agriculture.az.gov/. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/quality/?cid=stelprdb1044769 The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information https://www.azgfd.com/hunting/regulations.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (http://azstateparks.com/SHPO/index.html).

Trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches.

Based on the project type entered, coordination with Arizona Department of Water Resources may be required (https://new.azwater.gov/).

Based on the project type entered, coordination with U.S. Army Corps of Engineers may be required (http://www.usace.army.mil/)

Based on the project type entered, coordination with County Flood Control district(s) may be required.

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

**Project Location and/or Species Recommendations:**
HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

HDMS records indicate that **Western Burrowing Owls** have been documented within the vicinity of your project area. Please review the western burrowing owl resource page at:
https://www.azgfd.com/wildlife/speciesofgreatestconservneed/burrowingowlmanagement/.

Tribal Lands are within the vicinity of your project area and may require further coordination. Please contact:
**Tohono O'odham Nation**
PO Box 837
Sells, AZ 85634
(520) 383-1511
(520) 383-3377 (fax)

# APPENDIX C:

# TIEERA RIGHT OF WAY
# CULTURAL RESOURCES ASSESSMENT SURVEY
# AND CULTURAL RESOURCES OVERVIEW
# LETTER

Tierra Right of Way
A LAND SERVICES COMPANY

May 29, 2020

Mr. Gary Lane
LMK Investments LLC
23623 N. Scottsdale Road, Suite D3137
Scottsdale, AZ 85255

**Re: Sorrel Lane 136 Acres – Cultural Resources Overview Letter Report**

Dear Mr. Lane,

In response to your request, Tierra performed a Class I records search of the Arizona State Museum's (ASM's) online database, AZSITE, to determine whether any archaeological surveys have been performed and whether any sites have been recorded within the proposed 136-acre project area along Sorrel Lane. The project area encompasses private parcels 13829002A, 138296810, 138296820 and 138296830. The project area is 136 acres located northeast of the intersection of S. Sorrel Lane and W. Hermans Road in the southwest ¼ of Section 20, T15S, R13E, on the San Xavier Mission USGS Quadrangle, Pima County, Arizona (Figures 1 and 2). The project area is situated along the upper bajada of Black Mountain.

The Class I search found that the entire project area has been surveyed by Tierra in 2005 (Jones 2005). That survey located one site and 42 isolated artifacts. The report also notes that the southern half of the project area is largely basalt cobble pavement and the northern half consists of heavily compacted gravelly silts, both of which are unlikely to contain significant cultural resources that are not visible on the ground surface. The site, AZ AA:16:491(ASM), consists of a single stacked rock feature and a small flaked stone chipping station that consists of 56 quartzite flakes and cores. The site is 10 meters in diameter and is situated in an area of basalt cobble pavement with no possibility of buried cultural materials. The site was recommended as Not Eligible for the National Register of Historic Places (NRHP), and the State Historic Preservation Office (SHPO) determined the site as Not Eligible in 2007 (SHPO-2007-0052). Only one other survey, 2012-721.ASM, has been conducted within a 0.5-mile buffer around the project area and no sites were discovered during that survey (Figure 3). Though not depicted on Figure 3, a total of 25 surveys have been conducted within 1 mile of the project area, and only 5 sites are present. However, it must be noted that no information is available at this time for the San Xavier Reservation to the south of the project area, as the Arizona State Museum, where those records are securely stored, is closed due to COVID-19 restrictions.

The one known site in the project area, AZ AA:16:491(ASM), has been previously determined to be Not Eligible for the NRHP by SHPO, and soils within the project area are not suitable for significant buried cultural deposits. As the project area has been previously surveyed by a professional archaeologist using modern methods and very few known cultural resources are recorded in the vicinity of the project area despite intensive survey coverage, Tierra recommends that the proposed project be allowed to proceed without additional archaeological studies. The 2005 report is being submitted to you in addition to this letter for your records. Please note that Figure 2 has been removed from the document due to the depiction



1575 E. River Road, Suite 201 • Tucson, Arizona 85718 • 520.319.2106 • Fax: 520.323.3326
Right of Way • Cultural Resources • Environmental Planning
Federal, State, and Local Permitting • GIS/CAD Mapping
www.tierra-row.com

of sensitive site locations. Tierra can send the complete report on your behalf directly to the Pima County Office of Sustainability and Conservation, should the need arise. If you have any questions, please feel free to call me at (520) 319-2106.

Sincerely,

Chance Copperstone
Project Manager, Environmental Planning and Cultural Resources Division



1575 E. River Road, Suite 201 • Tucson, Arizona 85718 • 520.319.2106 • Fax: 520.323.3326
Right of Way • Cultural Resources • Environmental Planning
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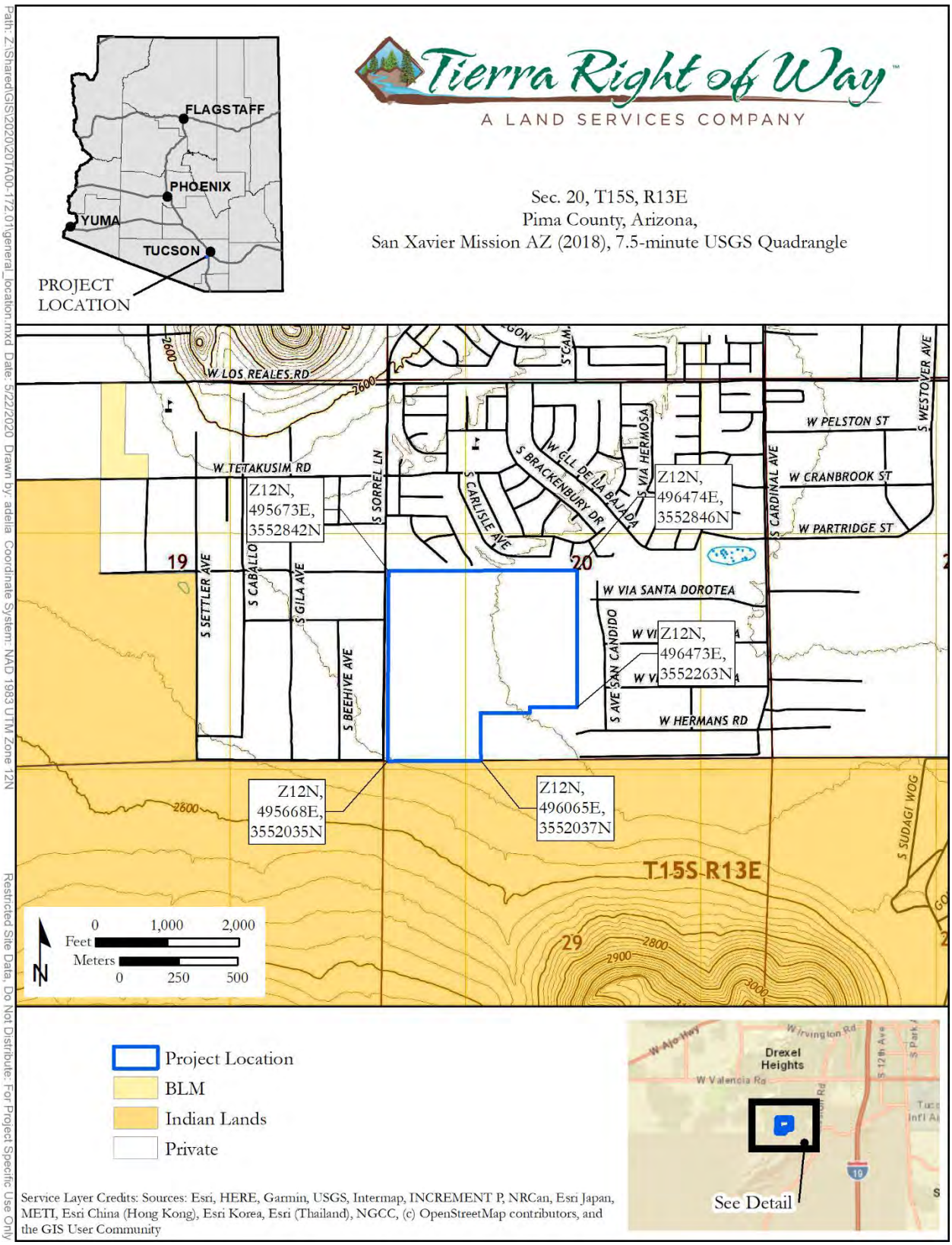


**Figure 1. Project location.**


**Figure 2. Detailed project location.**


**Figure 3. Previous projects within 0.5 miles of project area and previously recorded sites within the project area.** *CONFIDENTIAL*

**Table 1. Previous Surveys Conducted within 0.5 Miles of the Project Area.**

| 1. Project Reference Number | 2. Project Name | 3. Author(s) | 4. Year |
|---|---|---|---|
| 2005-1265.ASM | 136 Acre Survey | Jones | 2005 |
| 2012-721.ASM | Atlas 502 Survey | Slawson | 2012 |

**Table 2. Previously Recorded Sites within the Project Area.**

| 1. Site Number | 2. Affiliation | 3. Site Type | 4. Eligibility Status | 5. Associated Reference(s) |
|---|---|---|---|---|
| AZ AA:16:491(ASM) | Indeterminate | Rock feature and chipping station | Determined not eligible by SHPO | Jones 2005 |

**References Cited**

Jones, Jeffrey T.
2005 *A Cultural Resources Assessment Survey of 136 Acres North of Herman's Road and East of Sorrel Lane in Pima County, Arizona.* Tierra Archaeological Report No. 2005-112. Tierra Right of Way Services, Ltd., Tucson.

Slawson, Laurie V.
2012 *A Cultural Resources Inventory of 21.8 Acres for Southwest Gas Corporation Pipeline Improvements Southwest of Cardinal Avenue and Los Reales Road in Pima County, Arizona*. Report No. 2012-39. Aztlan Archaeology, Tucson.

# A CULTURAL RESOURCES ASSESSMENT SURVEY OF 136 ACRES NORTH OF HERMAN'S ROAD AND EAST OF SORREL LANE IN PIMA COUNTY, ARIZONA

*Prepared by:*
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*Submitted to:*
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Tierra Archaeological Report No. 2005-112
November 8, 2005

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## ABSTRACT


| | |
|---|---|
| PROJECT TITLE: | A Cultural Resources Assessment Survey of 136 Acres North of Herman's Road and East of Sorrel Lane in Pima County, Arizona |
| LAND STATUS: | Private |
| AGENCY: | Pima County |
| PROJECT DESCRIPTION: | The project sponsor proposes to develop a residential subdivision within the subject parcel. A Class III (intensive) systematic, non-collection pedestrian cultural resources assessment survey of the proposed development area was conducted in order to determine whether any potentially significant prehistoric or historical cultural resources were present. |
| PERMIT NO.: | State of Arizona Blanket Permit No. 2005-06bl |
| TIERRA PROJECT NO.: | 5T0-129A |
| TIERRA REPORT NO.: | 2005-112 |
| FIELDWORK DATE: | October 27, 2005 |
| LOCATION: | The inspected parcel is a 136-acre area of potential effect (APE) that begins at the northeast corner of Herman's Road and Sorrel Lane. The parcel extends northward 2,630 feet; it extends eastward 1,280 feet; then, it extends northward 660 feet; then, it extends eastward 680 feet; then, it extends northward 80 feet; then, it extends eastward 680 feet in the Southwest ¼ of Section 20, Township 15 South, Range 13 East, G&SRB&M, Pima County, Arizona, San Xavier Mission, Arizona (1992) 7.5' USGS Quadrangle. |
| ACRES SURVEYED: | 136 |
| NO. OF SITES RECOMMENDED TO BE NRHP ELIGIBLE: | 0 |
| NO. OF SITES RECOMMENDED TO BE NRHP INELIGIBLE: | 1; AZ AA:16:491(ASM) |

| | |
|---|---|
| NO. OF ISOLATED OCCURRENCES: | 42 |
| MANAGEMENT RECOMMENDATIONS: | One archaeological site and 42 isolated occurrences were discovered during this survey. The site, designated AZ AA:16:491(ASM), is a chipping station that includes one piled-rock feature, six cores, one chopper, and an estimated 50 flakes from a fine-grained, light-colored quartzite. No culturally or temporally diagnostic artifacts were found. The chipping station is located in an undisturbed area of volcanic cobble pavement, and subsurface cultural materials are highly unlikely. Site AZ AA:16:491(ASM) is unlikely to contain information important in history or prehistory beyond what was gathered for this report and is recommended to be ineligible for inclusion in the National Register of Historic Places.<br><br>No further archaeological work is recommended for all portions of the inspected APE with the following stipulation: if human remains are encountered anywhere in the survey area during any subsequent ground-disturbing activities, these activities shall cease in the area of the discovery and the Director of the Arizona State Museum (ASM) shall be immediately notified in accordance with Arizona Revised Statute §41-865. The Director will then have 10 working days to respond to the request. All ground-disturbing activities in the immediate vicinity of the discovery shall cease until a qualified archaeologist assesses the remains. Work in and around the area shall not resume until so directed by ASM personnel. |

# INTRODUCTION

On October 27, 2005, archaeologists Jeffrey T. Jones, Field Director, and Raphael Ambeliz Tom Klimas, and Ria Tsinas, all from Tierra Right of Way Services, Ltd. (Tierra), spent a total of 2.75 person-days conducting a Class III (intensive) systematic, non-collection pedestrian cultural resources assessment survey of a 136-acre parcel on private land in Pima County, Arizona (Figure 1). The survey was done in order to identify and record any cultural resources that might lie within the inspected area. The work was done at the request of Sorrel 136, L.L.C., who propose residential development of the parcel. Tierra holds Arizona State Museum Blanket Permit No. 2005-06bl.

This report includes a description of the project location, previous research in the project area, survey methods, results, and management recommendations.

# PROJECT LOCATION AND ENVIRONMENT

The inspected parcel is a 136-acre area of potential effect (APE) that begins at the northeast corner of Herman's Road and Sorrell Lane; the area extends northward 2,630 feet; it extends eastward 1,280 feet; then, it extends northward 660 feet; then, it extends eastward 680 feet; then, it extends northward 80 feet; then, it extends eastward 680 feet in the Southwest ¼ of Section 20, Township 15 South, Range 13 East, G&SRB&M, Pima County, Arizona (Figure 1). The inspected parcel is private land.

The project area is situated within the Basin and Range Physiographic Province at an average elevation of 2,540 feet above sea level. Soils range from vesicular basalt cobble pavement in the southern project area to highly compacted gravelly silt in the northern project area. All soils are classified as part of the Lithic Torriorthents-Lithic Haplustolls-Rock Outcrop Association (Hendricks 1985:99, Plate 1). The project area is located on the upper bajada of Black Mountain.

The native vegetation in the project vicinity is typical of the Arizona Upland division of the Sonoran Desertscrub biotic province (Turner and Brown 1982) and includes Creosotebush, mesquite, palo verde, cholla and Prickly Pear cactus, and native shrubs and grasses. Overall ground visibility is excellent.

Portions of the project area have been damaged by all-terrain vehicle (ATV) trails, unimproved roads, and illegal dumping.

# TUCSON BASIN CULTURE HISTORY

Although humans may have been present in the eastern United States as early as 13,000 B.C., the earliest securely dated sites in Arizona and the Southwest are attributed to the Clovis culture, part of a Paleoindian tradition dating to about 11,000 B.C. (Bronitsky and Merritt 1986). The Clovis tradition is characterized by finely made, lanceolate projectile points with fluted faces that were used to hunt large, now-extinct game animals, such as bison and mammoth. By around 7500 B.C., the Paleoindian tradition was replaced by or evolved into what is known as the Archaic tradition, in which subsistence was based on both hunting and gathering of wild resources. The Archaic was originally described as a widespread hunting-gathering culture without pottery or formal structures (Sayles and Antevs 1941).

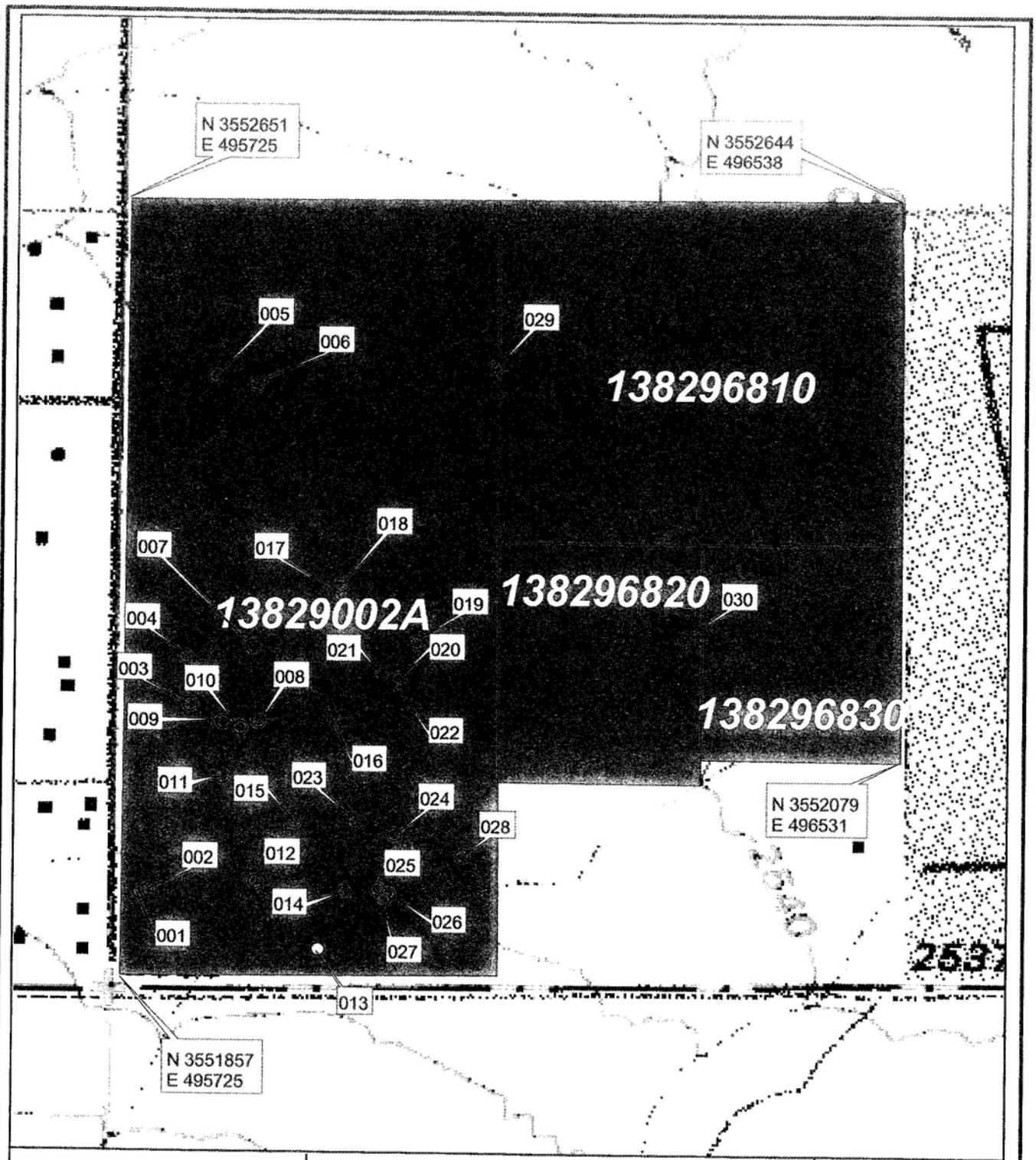


Figure 1. Project location and isolated occurrences.

Recent excavations at deeply buried sites in the floodplain of the Santa Cruz River, however, have shown that corn was being grown as early as 1500 B.C. (Gregory 1999), and that by ca. 800 B.C., large pit structure villages with communal structures and storage facilities were present (Mabry 1997).

Well-made pottery appeared in southern Arizona settlements one or two centuries before the common era, marking the beginning of the Formative tradition, in which people began relying on agriculture and living a more sedentary lifestyle than their Archaic predecessors (Mabry et al. 1997). The Hohokam culture, known for its red-on-buff and red-on-brown painted pottery, elaborate stone and marine shell artifacts, and large communal structures known as ball courts and platform mounds, is the primary Formative culture in the project area. Around A.D. 1450, the Hohokam tradition came to an end (Haury 1976).

The first recorded European contact in the Tucson Basin took place in A.D. 1694, when Eusebio Francisco Kino, a Jesuit missionary, visited the area (Thiel 1993). At the time, the region was occupied primarily by the Sobaipuri and Tohono O'odham people, whose material culture appears to have been much less complex than that of the earlier Hohokam. The introduction of Europeans and Christianity profoundly changed native ways of life. Livestock, wheat, and other domesticates were added to the economy, and the native settlements of Sonora and Arizona were reorganized with a new focus on mission communities (Bolton 1984; Spicer 1962). After A.D. 1700, Apache Indians began raiding extensively, and forts, called *presidios*, were established by the Spanish at strategic places for protection. Between 1821 and 1854, the Santa Cruz Valley was part of Mexico and was dominated by inhabitants of Spanish and Mexican descent who survived mainly by farming, ranching, and trade (Spicer 1962).

The Mexican War of 1846 and the subsequent Gadsden Purchase of 1854 led to the end of Spanish and Mexican dominance of the Santa Cruz Valley. Arizona officially became a U.S. territory in 1863 during the War Between the States. Ranching and mining dominated the Territorial economy and brought in transient Anglo-Americans in search of gold, silver, and other minerals. The coming of the railroad to Tucson in 1880 introduced a more commercially oriented economy dominated by Anglo-Americans (Spicer 1962; Sheridan 1986).

Since Arizona became a state in 1912, federal- and state-sponsored programs have brought improvements in transportation, education, and agriculture. Copper mining, national defense–related industry, and computer technology companies have become major economic forces; farming and ranching have remained important in the Santa Cruz Valley (Spicer 1962; Sheridan 1986).

## PREVIOUS ARCHAEOLOGICAL WORK NEAR THE PROJECT AREA

Prior to fieldwork, a site file search was performed in the AZSITE on-line database and at the Arizona State Museum (ASM) site files office in order to determine whether any portions of the project area had previously been surveyed and to locate previously recorded sites. No sites or surveys were reported within the project area, but 11 surveys and three archaeological sites were recorded within a 1-mile radius (Figure 2).

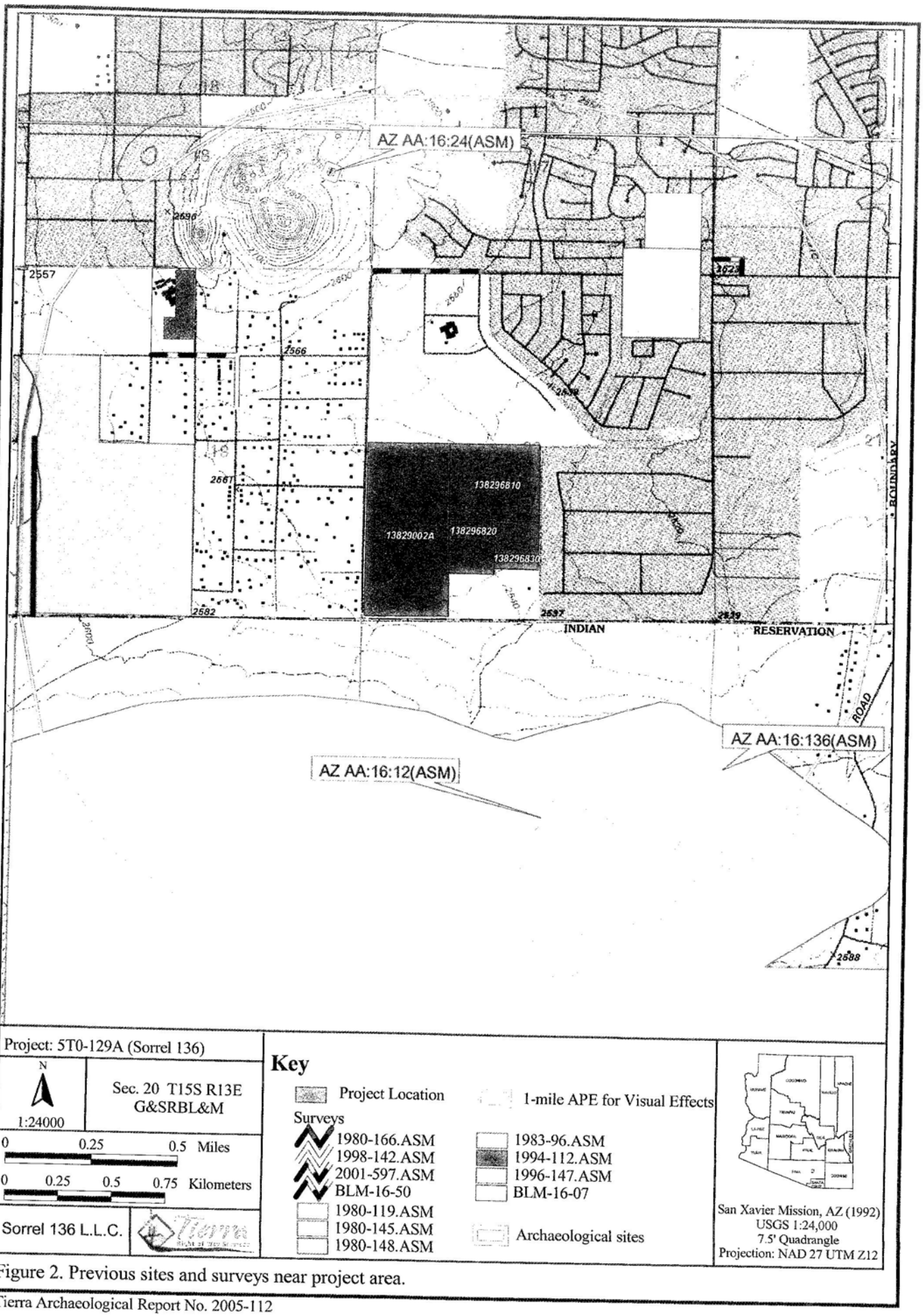


Figure 2. Previous sites and surveys near project area.