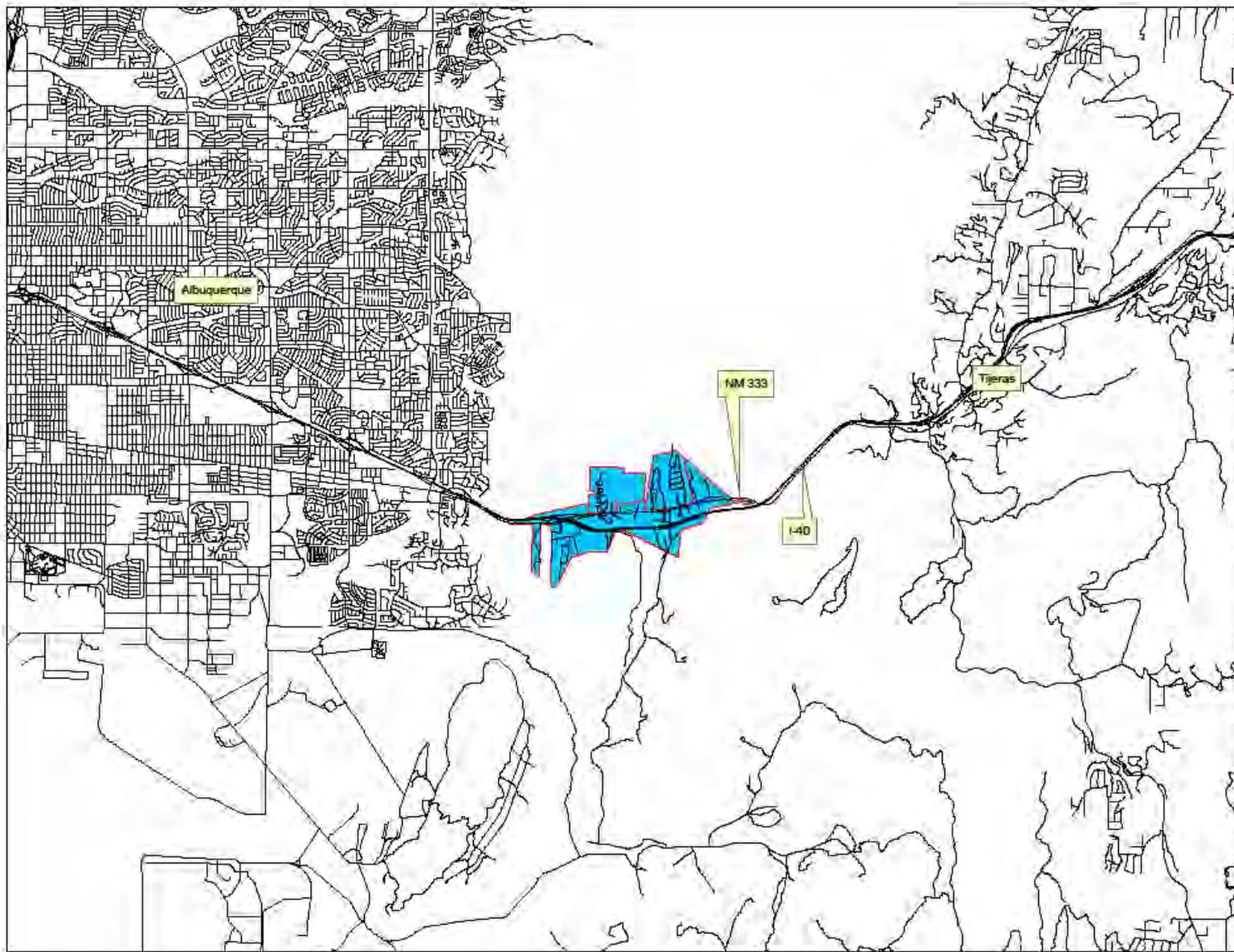


Carnuel Waste Water
System Improvements
Project Public Hearing
March 27, 2013

Current Status on Wastewater Project

- Preliminary Engineering Report (PER)
 - FINAL PER has been reviewed and approved by the NM Environment Department in 2010

- Environmental Information Document
 - Started July 2012
 - Funding in \$50,000 provided by Bernalillo County
 - Marron and Associates will provide an overview of this status



Legend

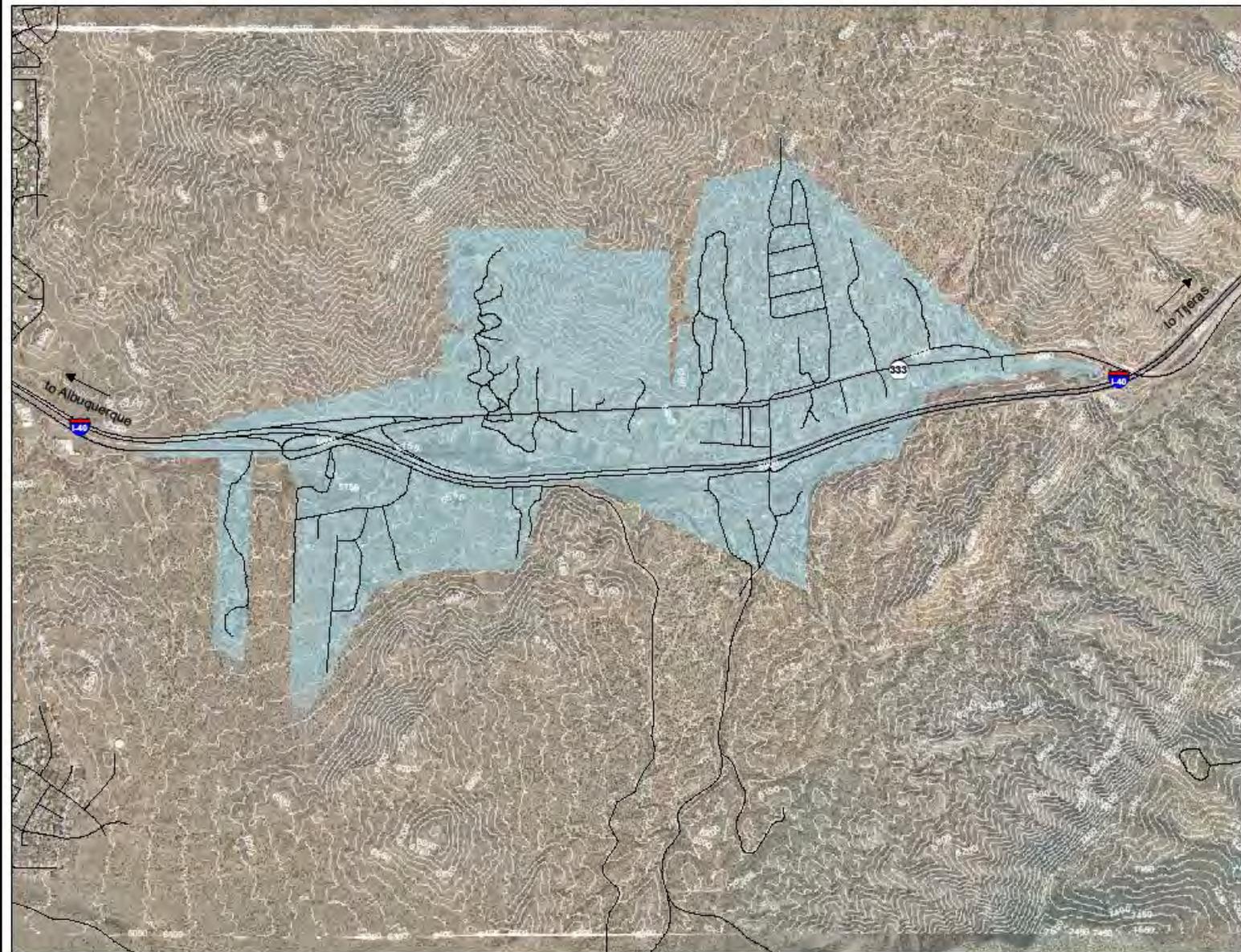
- Roads
- Carmuel MDW & WWCA Service Area
- Cities

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE II-1
LOCATION MAP



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 ArcView\Figure 1- Location Map.mxd
 DECEMBER 2010 3



Legend

- Roads
- Planning Area
- Contours

CARNUEL WASTEWATER
IMPROVEMENTS PRELIMINARY
ENGINEERING REPORT

FIGURE II-2 PROJECT PLANNING AREA

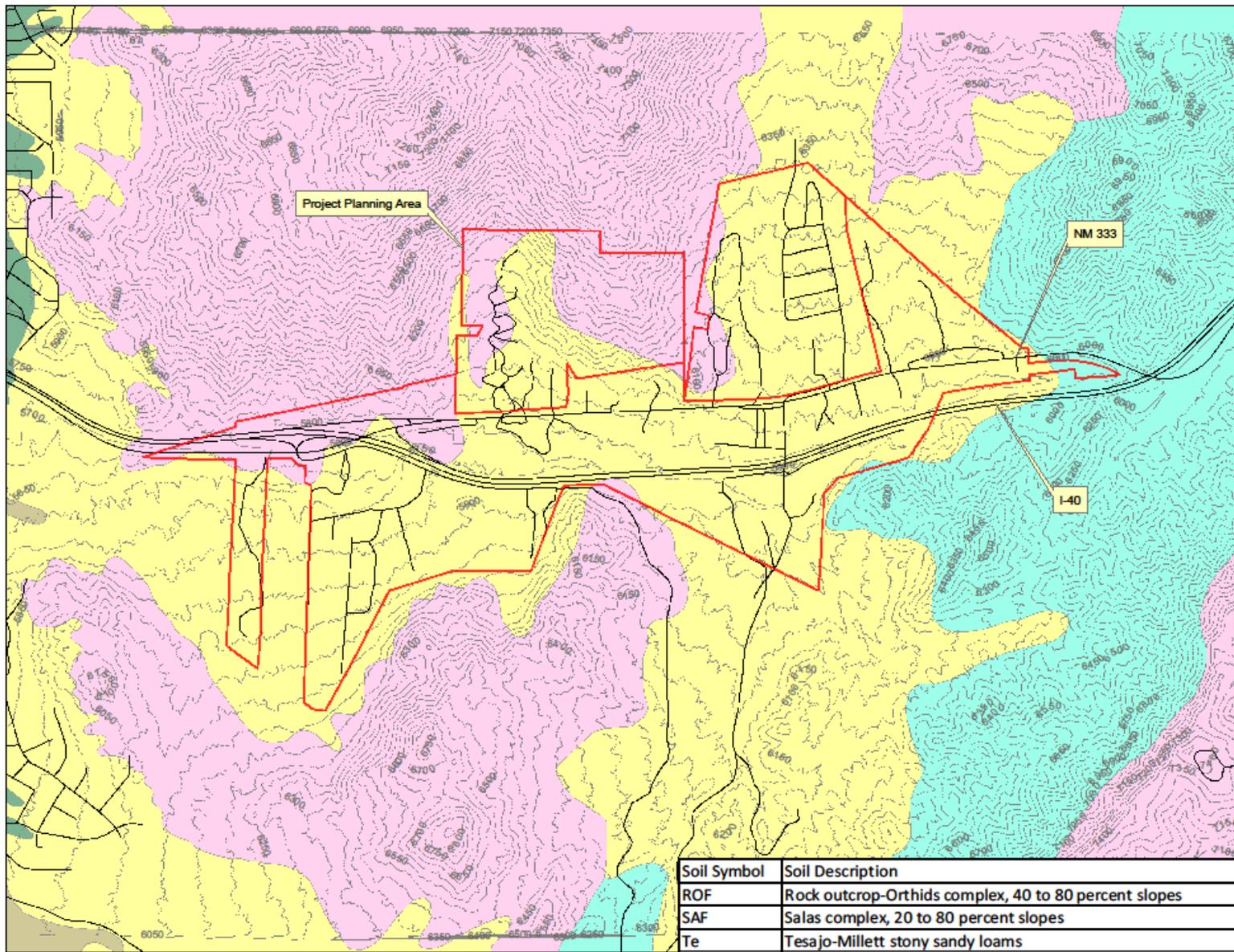


0 750 1,500 3,000 Feet



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ArcView\Figure2-ProjectPlanningArea.mxd

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Legend

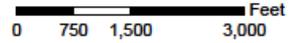
- Roads
- Camuel MDW & WWCA Service Area

SOIL SYMBOL

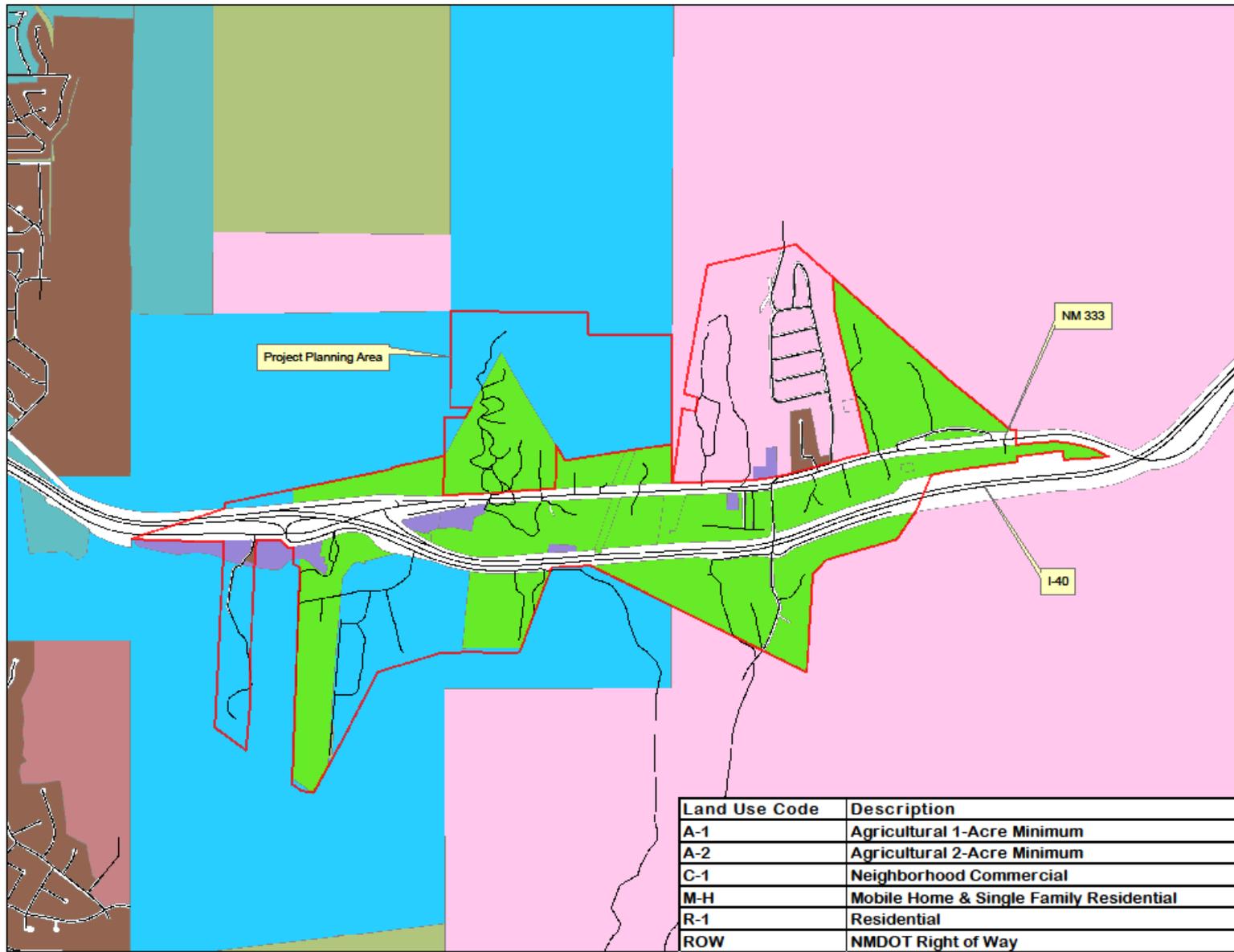
- ROF
- SAF
- Te
- 50-foot Contours

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

**FIGURE II-3
BERNALILLO COUNTY
SOIL SURVEY**



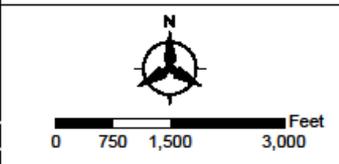
Soil Symbol	Soil Description
ROF	Rock outcrop-Orthids complex, 40 to 80 percent slopes
SAF	Salas complex, 20 to 80 percent slopes
Te	Tesajo-Millett stony sandy loams



- Legend**
- Roads
 - Camuel MDW & WWCA Service Area
- ZONING CODE**
- A-1
 - A-2
 - C-1
 - M-H
 - ROW
 - R-1

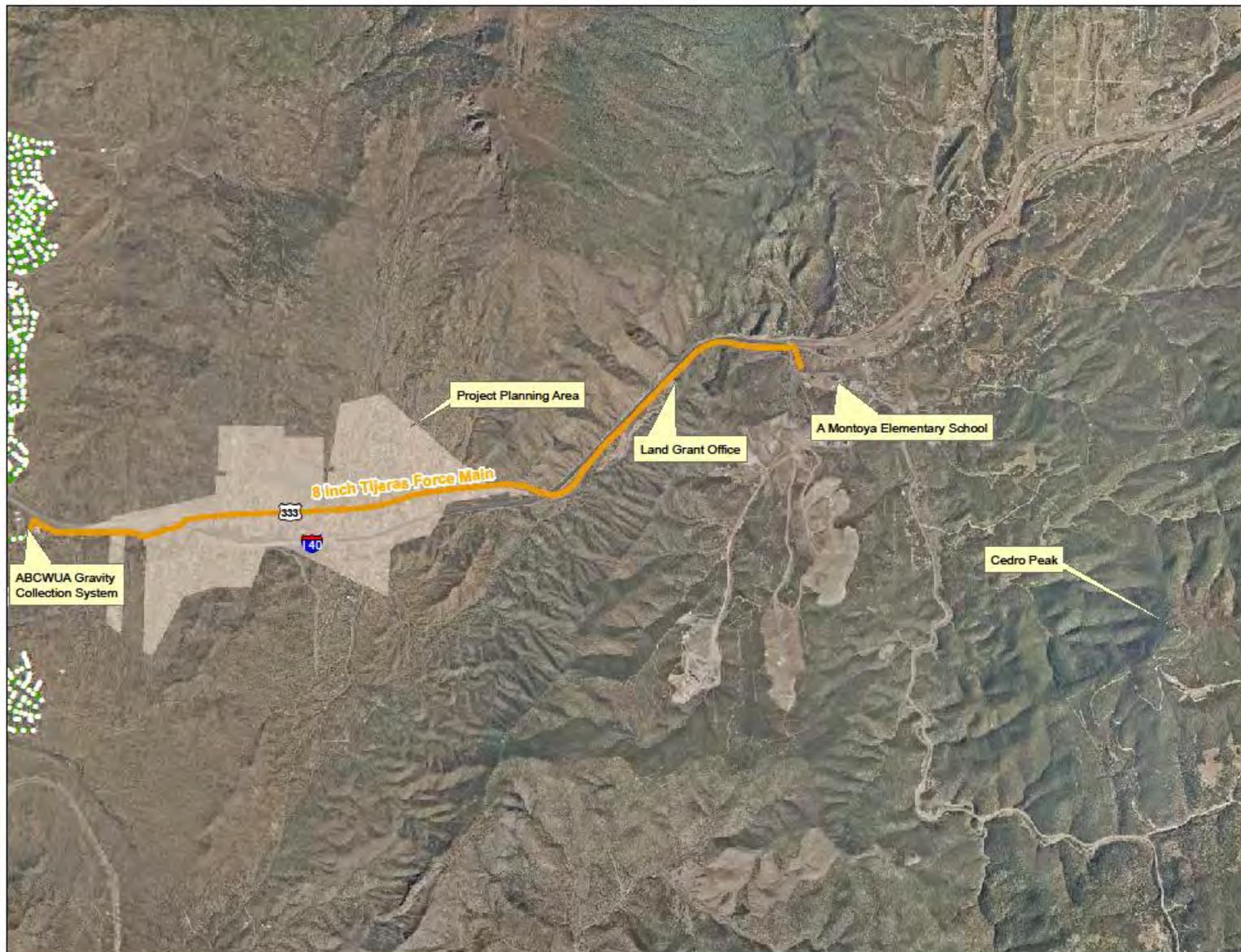
CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE II-4
ZONING

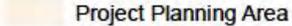


Land Use Code	Description
A-1	Agricultural 1-Acre Minimum
A-2	Agricultural 2-Acre Minimum
C-1	Neighborhood Commercial
M-H	Mobile Home & Single Family Residential
R-1	Residential
ROW	NMDOT Right of Way

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 DECEMBER 2010



Legend

-  WW MANHOLE
-  Sewer Force Main
-  SEWER LINES
-  Project Planning Area

CARNUEL WASTEWATER
IMPROVEMENTSPRELIMINARY
ENGINEERING REPORT

**FIGURE III-2
EXISTING ABCWUA
WASTEWATER
SYSTEM**



0 4,000 8,000 Feet

Atkins | a subsidiary of
Water Utility Authority

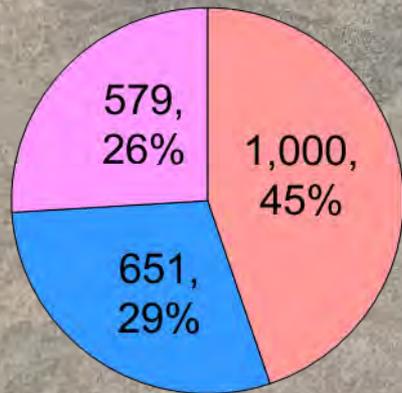
Birkman + Boston

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Date: 11/05/2010

20

2010 Population



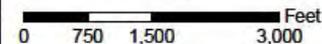
- A - North of NM 333
- B - South of I-40
- C - Between I-40 & NM 333

Legend

- Tijeras Force Main
- Study Area**
 - A - North of NM 333
 - B - South I-40
 - C - Between I-40 and NM 333

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

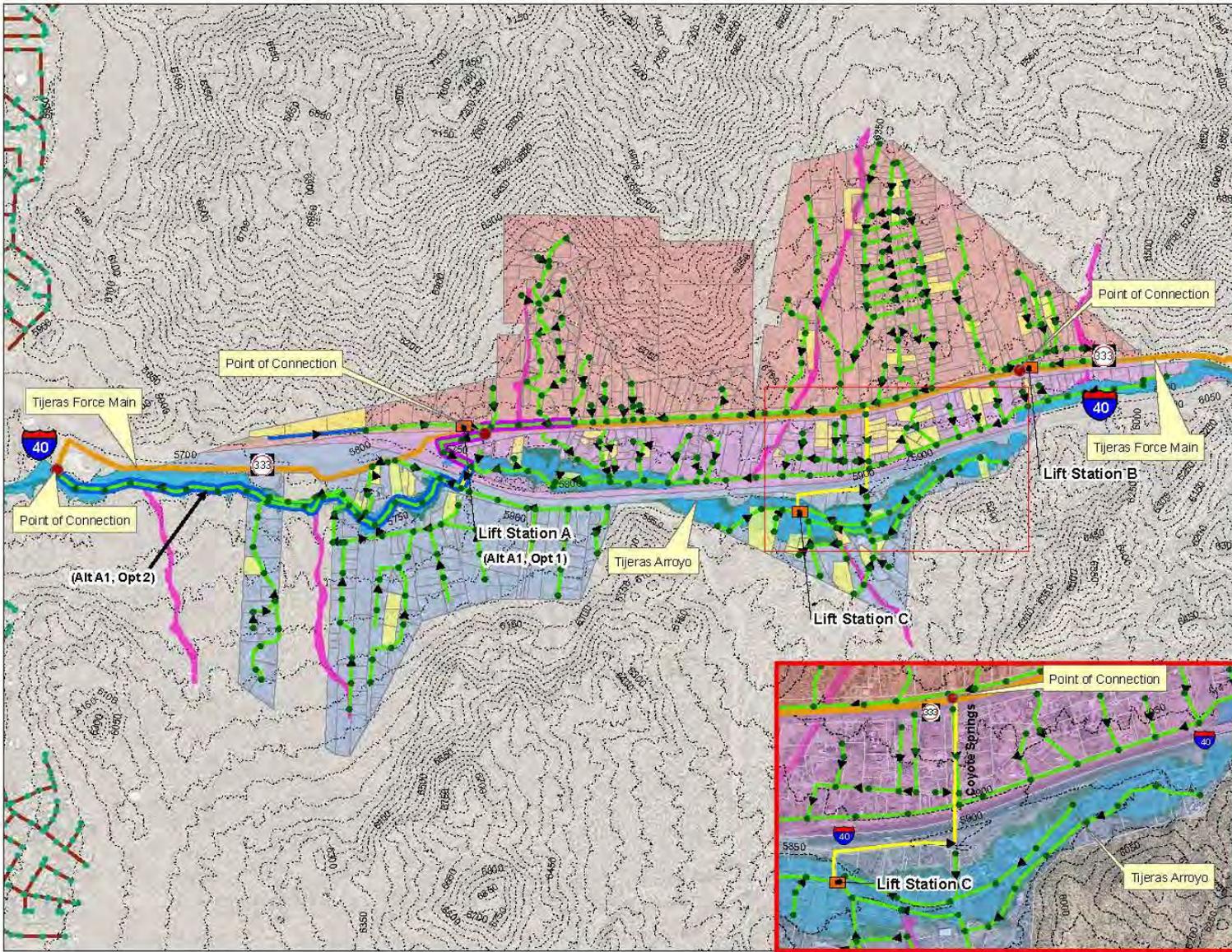
FIGURE V-1 Study Areas



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Legend

- Lift Station
- Manholes

Proposed Sewer Lines

- ▶ Force Main
- ▶ Gravity (8-inch)
- ▶ Low Pressure (Zone A Only)

Larger Sewerline Required

Diameter

- 10
- 15
- Individual Grinder Pump Req.
- Tijeras Force Main

Flood Hazard

- Flood Zone AO
- Flood Zone AE
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD

Study Area

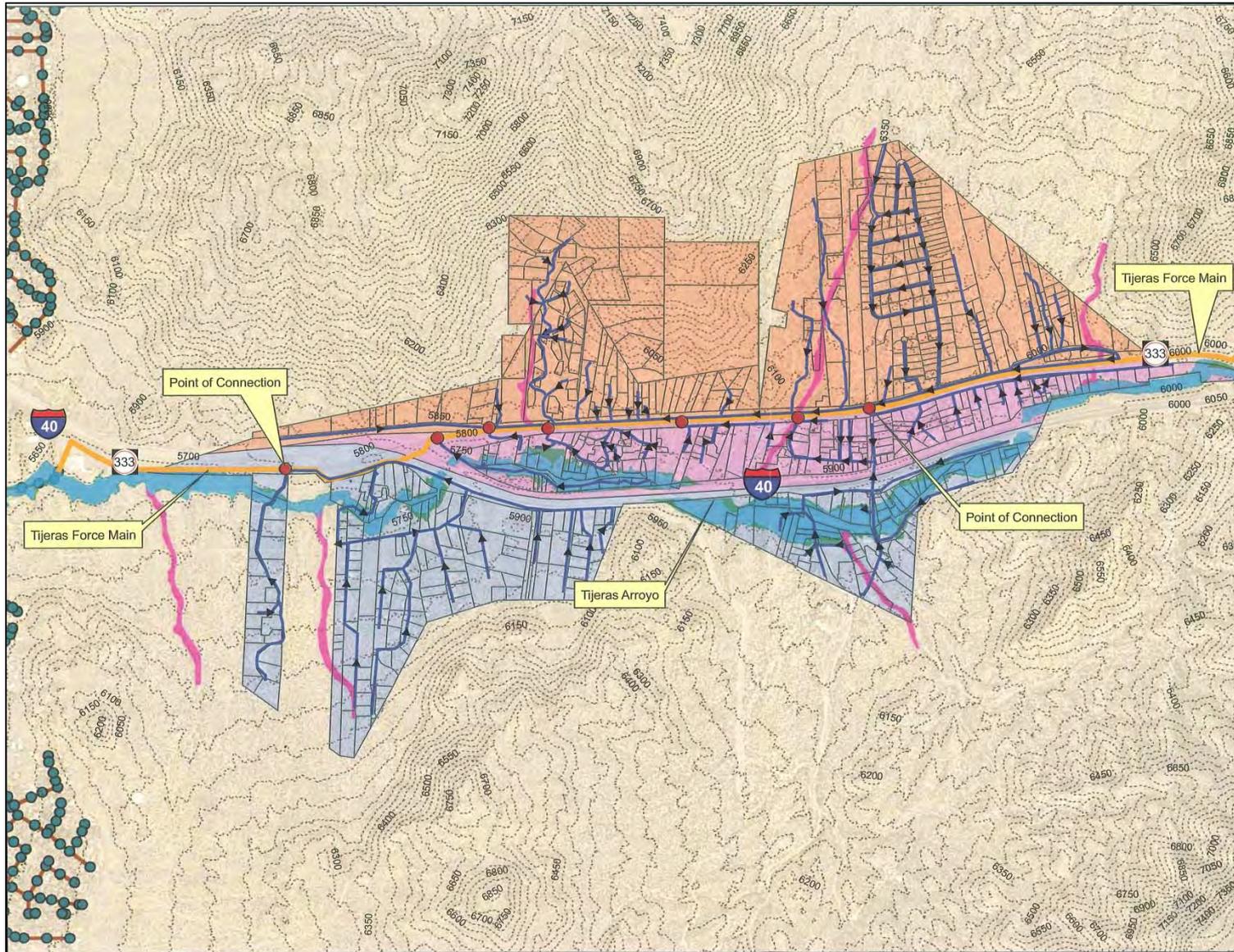
- A - North of NM 333
- B - South I-40
- C - Between I-40 and NM 333
- Contour 50ft

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE V-2
 Conceptual Gravity Collection System



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Legend

- Low Pressure Main Lines
- Tijeras Force Main
- Parcels
- Flood Hazard**
- Flood Zone AO
- Flood Zone AE
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- Study Area**
- A- North of NM 333
- B - South I-40
- C - Between I-40 and NM 333
- Contour 50ft
- Point of Connection

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE V-4
Conceptual
Low Pressure
Collection System

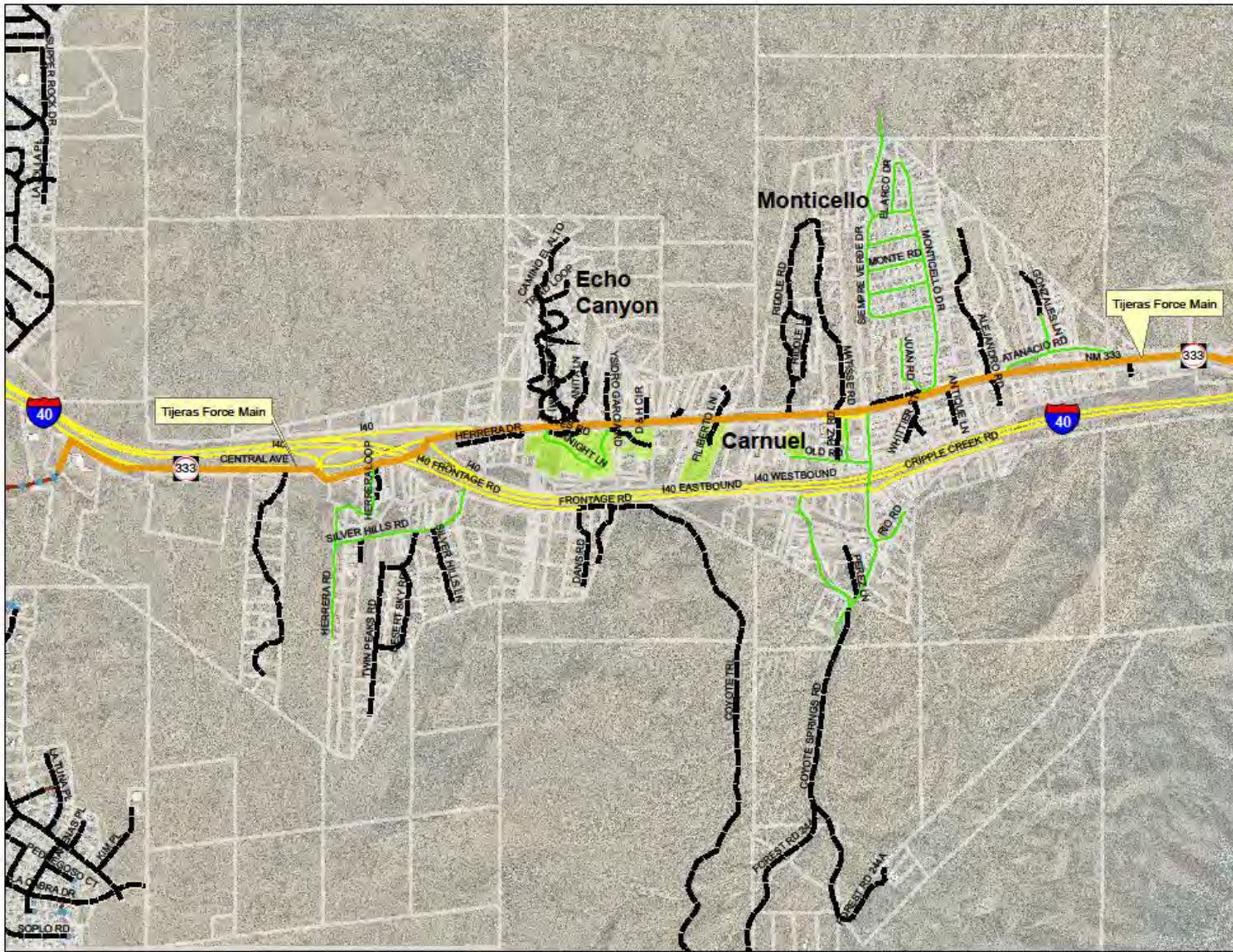


Water Utility Authority **Bohannon + Houston**

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DECEMBER 2010

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Legend

Sewer Force Main

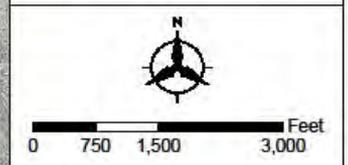
- Tijeras Force Main

EASEMENTS FROM ROADS

- BC Maintained
- NMDOT Maintained
- Not BC Maintained
- Rural Paths & Trails
- Parcels with Easements from Carnuel Water Improvements

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE V-3
JURISDICTIONAL
AUTHORITY
FOR ROADWAYS



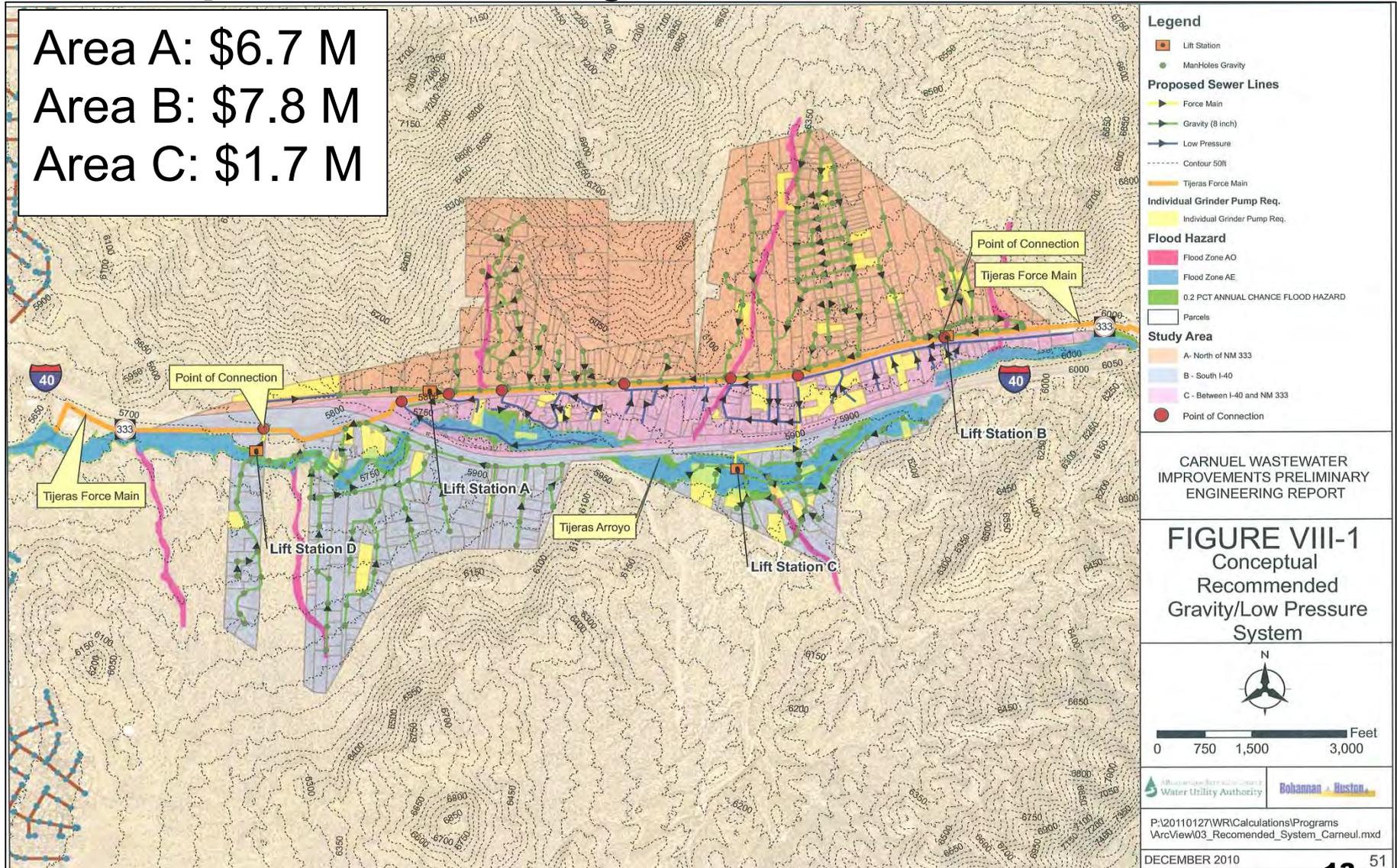
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Evaluation of Alternates

Alternative	Capital Cost	O & M Costs	Customer Costs
A1- Option 1 (Gravity service with 2 Lift Stations)	\$6.7 million	\$53,000	Low
A1- Option 2 (Gravity service with 1 Lift Station)	\$8.4 million	\$28,000	Low
A2 (Low Pressure Service)	\$3.7 million	\$19,000	High
B1 (Gravity service with Lift Stations C and D)	\$7.8 million	\$49,000	Low
B2 (Low Pressure System for Area B, south of I-40)	\$3.0 million	\$19,000	High
C1 (Gravity Service)	\$4.4 million	\$31,000	Low
C2 (Low Pressure System)	\$1.7 million	\$19,000	High

Proposed Project

Area A: \$6.7 M
 Area B: \$7.8 M
 Area C: \$1.7 M



Proposed Project

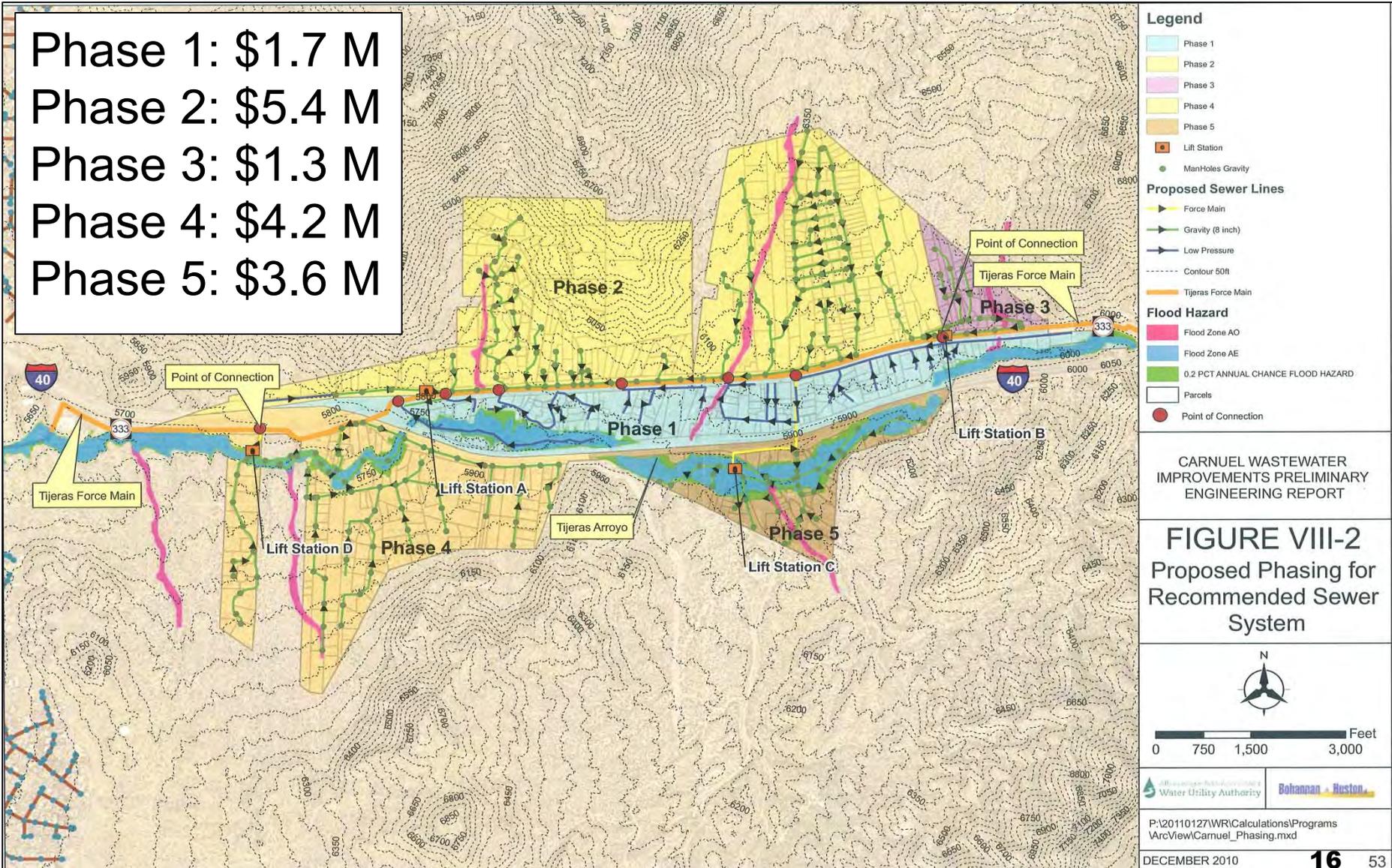
Alternative	Capital Cost	O & M Costs	Customer Costs
A1- Option 1 (Gravity service with 2 Lift Stations)	\$6.7 million	\$53,000	Low
B1 (Gravity service with 2 Lift Stations)	\$7.8 million	\$49,000	Low
C2 (Low Pressure System)	\$1.7 million	\$19,000	High
Total	\$16.2 million	\$121,000	2 Low/1 High

Proposed Project Detail

- Area A – For Area A, Alternate A1, Option 1, a gravity collection system, is recommended, draining to a proposed lift station (Lift Station A) located north of I-40, near the crossing of NM 333 and I-40. Lift station A would discharge to the Tijeras Force Main, located in the median for NM 333. A second lift station (Lift Station B) will be required for the east end of Area A because the topography does not allow gravity flow to the proposed extension along NM 333. This lift station would discharge to the Tijeras force main, to avoid pumping the sewage twice (through both Lift Stations A and B).
- Area B – For Area B, Alternate B1, a gravity system is recommended. The western portion of Area A would collect at a lift station (Lift Station D) to be located south of NM 333, discharging to the Tijeras force main at that location. The eastern portion of Area B would collect at a lift station (Lift Station C) and would discharge to a force main crossing I-40 at the Coyote Springs bridge and discharging to the Tijeras force main in NM 333.
- Area C – For Area C, Alternate C2, a low pressure system with individual grinder pumps is recommended. The low pressure system for the area would discharge to the Tijeras force main at a location between NM 333 and I-40.

Proposed Phasing

Phase 1: \$1.7 M
 Phase 2: \$5.4 M
 Phase 3: \$1.3 M
 Phase 4: \$4.2 M
 Phase 5: \$3.6 M



Legend

- Phase 1 (Light Blue)
- Phase 2 (Yellow)
- Phase 3 (Pink)
- Phase 4 (Orange)
- Phase 5 (Light Blue)
- Lift Station (Red Square)
- ManHoles Gravity (Green Circle)

Proposed Sewer Lines

- Force Main (Yellow Line with Arrow)
- Gravity (8 inch) (Green Line with Arrow)
- Low Pressure (Blue Line with Arrow)
- Contour 50ft (Dashed Line)
- Tijeras Force Main (Orange Line)

Flood Hazard

- Flood Zone AO (Pink)
- Flood Zone AE (Light Blue)
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD (Green)
- Parcels (White)
- Point of Connection (Red Circle)

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE VIII-2
 Proposed Phasing for Recommended Sewer System



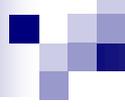
0 750 1,500 3,000 Feet

Water Utility Authority Bohanan-Huston

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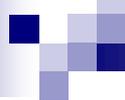
Proposed Phasing Detail

- Phase 1: Low pressure system for Area C. This area was prioritized based on the density of population and age of structures and septic tanks. This phase would include installation of low pressure main lines. Public easements need to be established for those main lines. The low pressure system would connect to the existing Tijeras force main at several locations.
- Phase 2: Gravity system for majority of Area A, with Lift Stations A connecting to the Tijeras force main in the median of NM 333. The main gravity collector for this area would parallel NM 333 on the north side of the roads allowing immediate service for those lots with frontage along NM 333. Area A has the most residents and the swellings are concentrated along roadways, many of which are public and or are covered by the blanket easement.
- Phase 3: Lift Station B and gravity sewer for eastern portion of Area A. Some public ROW is available in this area. The Lift Station would discharge to the Tijeras force main at a location near Alejandro Road.
- Phase 4: Lift Station D and gravity sewer for the western portion of Area B.
- Phase 5: Gravity sewer and a lift station for the eastern portion of Area B. This project includes crossing the Coyote Springs Bridge and a force main discharging to the Tijeras force main at Coyote Springs.



Environmental Review

Marron & Associates



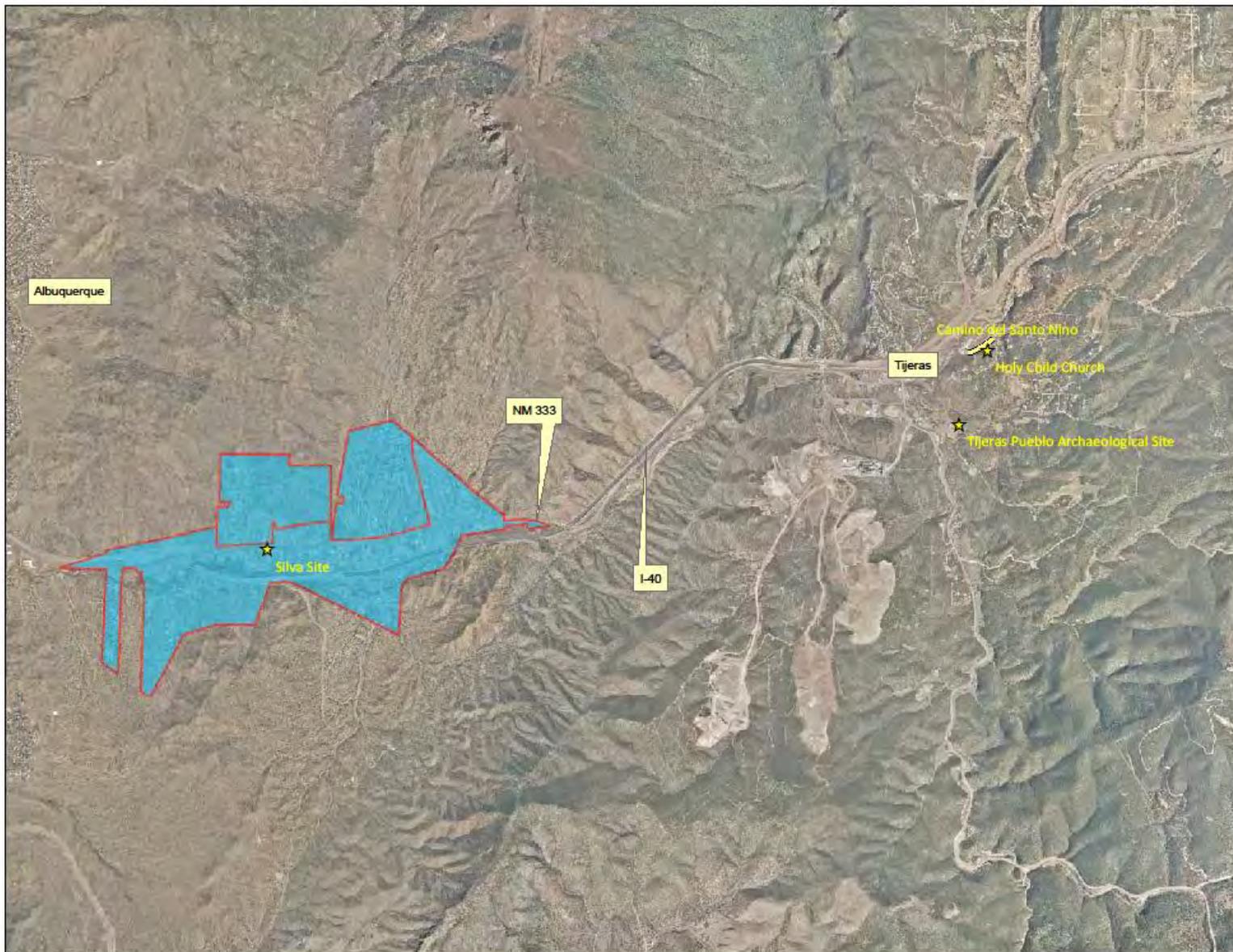
Lead Agencies

- Albuquerque Bernalillo County Water Utility Authority
- NM Environment Department

Applicable Laws & Guidance

- National Environmental Policy Act
- National Historic Preservation Act
- Clean Water Act
- Endangered Species Act
- Agency guidance



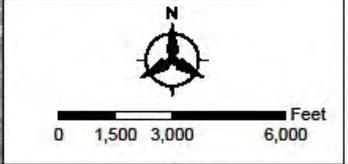


Legend

- Camuel MDW & WWCA Service Area
- Historical Site
- Camino del Santo Nino

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE II-6
HISTORICAL RESOURCES

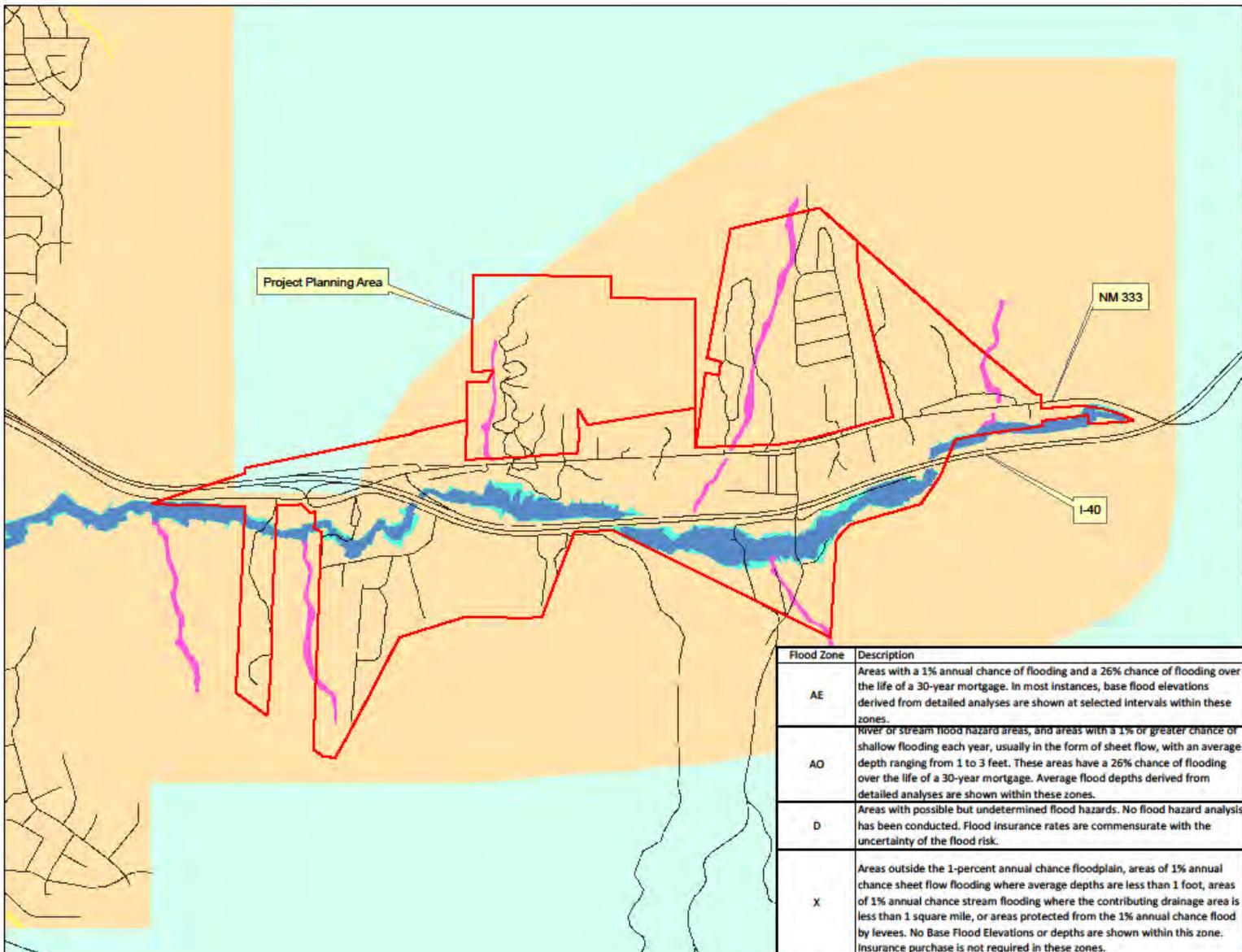


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Environmental Issues

- Land Use
- Floodplains
- Wetlands
- Cultural Resources
- Biological Resources
- Water Quality
- Coastal Resources





Legend

- Roads
- ▭ Camuel MDW & WWCA Service Area

FLOOD ZONE

- ▭ 0.2 % Annual Chance Flood Hazard
- ▭ AE
- ▭ AO
- ▭ D
- ▭ X

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

**FIGURE II-7
FEMA FLOODPLAINS**

Flood Zone	Description
AE	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.
X	Areas outside the 1-percent annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

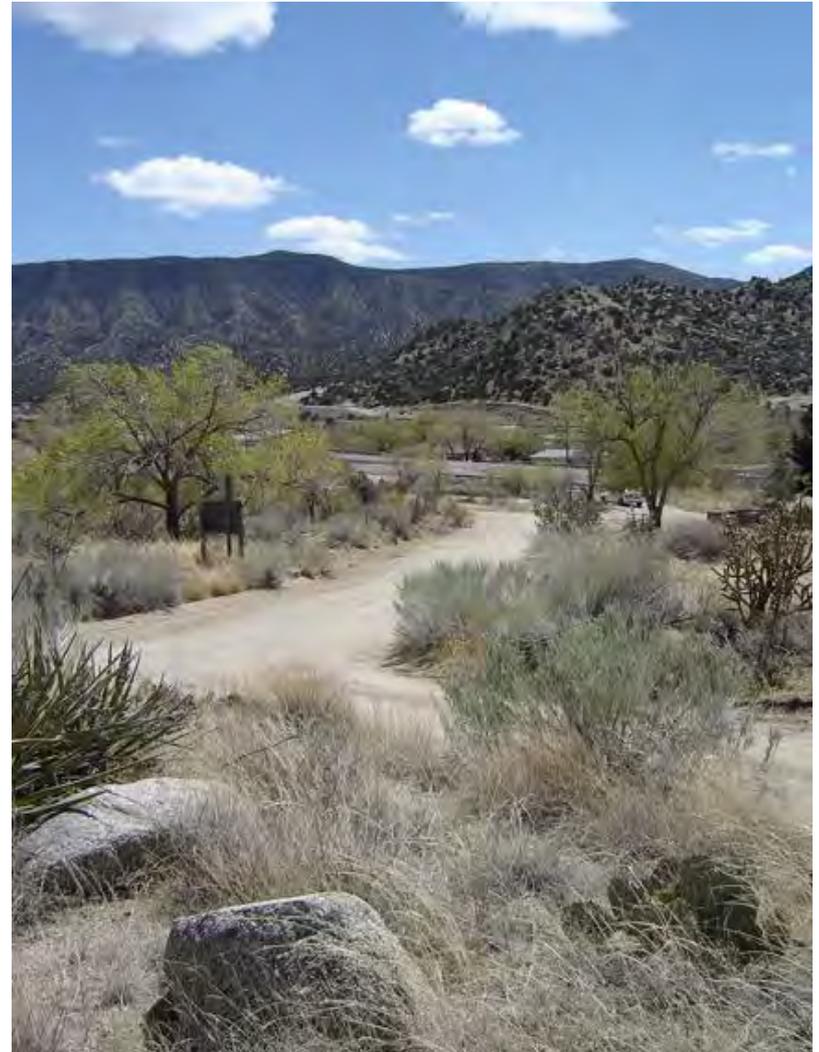
N

Feet

0 750 1,500 3,000

Environmental Issues

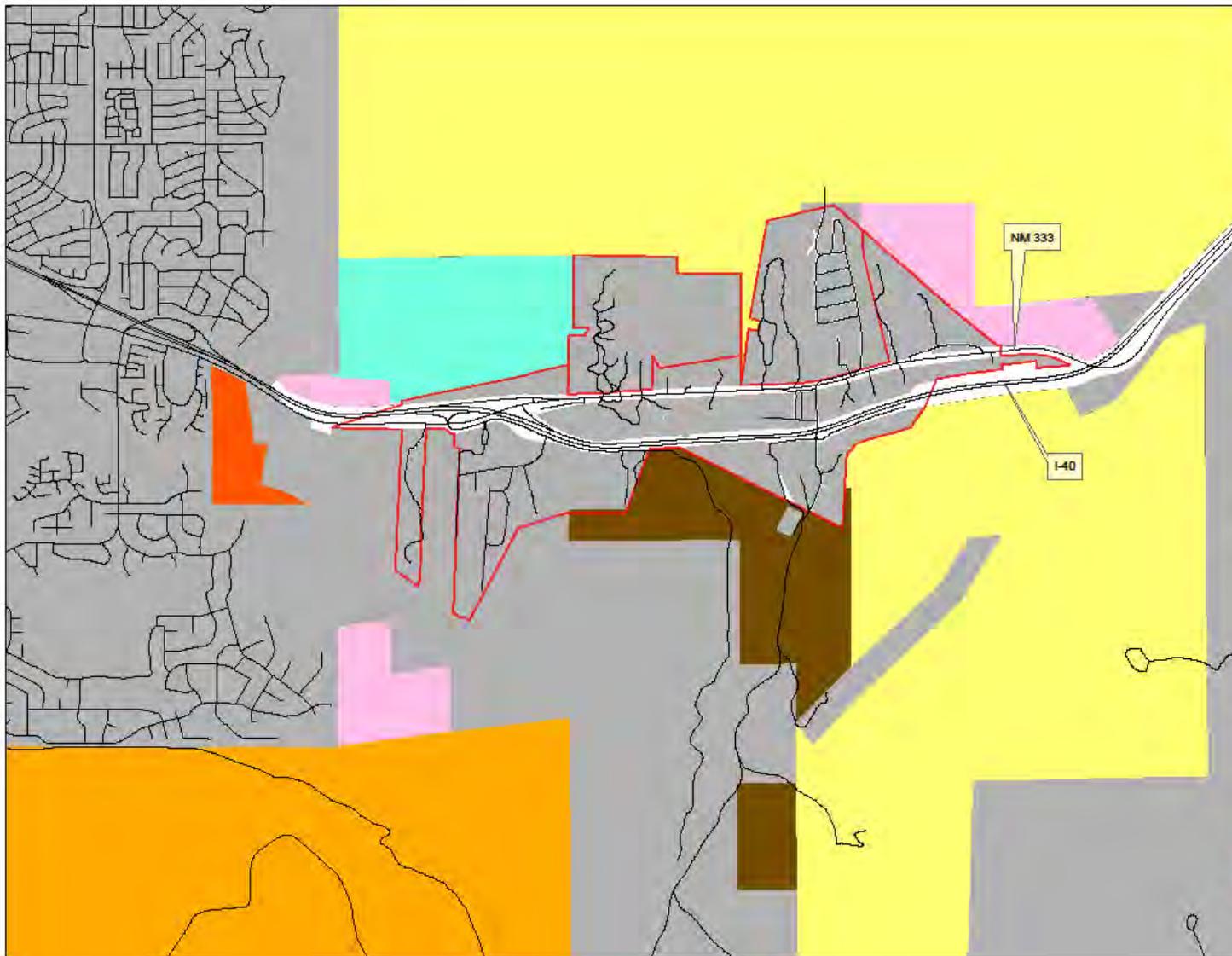
- Socioeconomics & Environmental Justice
- Climate & Air Quality
- Noise
- Visual Impacts
- Other Resources
- Cumulative Impacts





Environmental Commitments

- Physical Resource Measures
- Biological Resource Measures
- Threatened and Endangered Species Measures
- Socioeconomic/Environmental Justice Measures
- Cultural Resource Measures
- Environmentally Sensitive Areas
- Other Resources

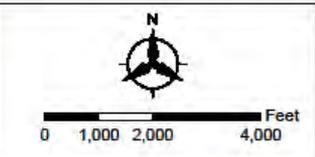


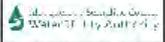
Legend

- Roads
- ▭ Project Planning Area
- ▭ US Government/KAFB
- ▭ US Forest Service
- ▭ Coyote Springs
- ▭ Private/Unknown
- ▭ City of Albuquerque
- ▭ City of Albuquerque Open Space
- ▭ Proposed City of Albuquerque Open Space Purchase

CARNUEL WASTEWATER IMPROVEMENTS PRELIMINARY ENGINEERING REPORT

FIGURE II-5
LAND OWNERSHIP





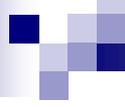

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Agency and Public Involvement



- Agency Coordination
- Public Scoping Meeting
- Public Hearing
- Availability of Documents



Public Sanitary Sewer Requirements & Financial Costs

Water Authority

Bernalillo County Code (Sec. 42-498)

Public sanitary sewer system within 200 feet of the property line

- Any new structure that generates wastewater must connect to the public sanitary sewer system prior to the structure being occupied.
- Any lot that has a structure that generates wastewater must connect to the public sanitary sewer system within one year of the system being available.

Bernalillo County Code - Sewers

Exceptions for existing structures

- A failing septic system must be abandoned and the structure must be connected to sewer within 30 days of the septic system's failure.
- Within 30 days of the ownership of the property changing, the structure shall be connected to sewer unless owner can prove system is in good operating condition and buyer enters into a maintenance agreement.
- Septic systems that were installed prior to the public sanitary sewer system becoming available and meet the requirements of Section 42-508, Performance standards, without a variance, are not required to connect to the sewer system until the system fails.

Abandonment of Septic System

- Required under County Code - Sec. 42-506(C)
 - Must be abandoned within 30 days of the discontinuance of use
- Estimated Cost ~ \$1,000
- Process involves pumping out the entire tank and collapsing the entire tank; a clean fill soil is then used to backfill the void
- Possible to use vacated septic tank for graywater system pending BCEH permit
- Possible to use vacated septic tank for rainwater harvesting pending BCEH inspection

Connection Costs

- Construction the service line or lateral from the house to the sewer system - about \$500

Low Pressure System Additional Costs

- Grinder pumping systems and appurtenances – about \$4,500
 - 10 year mean life on pump
- Electrical upgrades – about \$1,000

Connection Costs

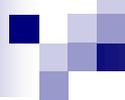
- Sanitary Sewer Connection Charge is called the Utility Expansion Charge (UEC)
- UEC residential cost is \$2,074
 - UEC is adjusted annually based on inflation rate
- UEC can be financed with the Water Authority over a period of 10 years at an interest rate of 7% per annum with a 5% down payment (\$104)
- Average Sewer Residential Monthly Rate: \$17.56

Summary of Connection Costs

Type	Gravity System	Low Pressure System
UEC (Residential)	\$2,074	\$2,074
Service Line Installation	\$500	\$500
Septic Tank Abandonment	\$1,000	\$1,000
Grinder Pump System	--	\$4,500
Electrical Upgrades	--	\$1,000
Total	\$3,574	\$9,074

Financial Assistance

- Bernalillo County's Partners in Improving and Protecting the Environment (PIPE)
- PIPE program covers plumbing costs for connection to sanitary sewer lines, and abandonment of septic tank
- Qualification for the PIPE program is based on the number of persons residing in your household and the total combined incomes of all persons in the household
- You must own the property, have resided in the house for the past year and the Total Full Value of the property may not exceed \$185,100
- Call 848-1524 for more information
- Website: www.bernco.gov/PIPE



Questions & Comments

For more project information,
go to www.abcwua.org/carnuel