SECTION 3.0

EXISTING AIRPORT FACILITIES INVENTORY

SECTION 3.0

EXISTING AIRPORT FACILITIES INVENTORY

3.1 INTRODUCTION

This section presents an overview of Double Eagle II Airport's existing physical facilities, operational characteristics, and recent and ongoing facility development. An accurate and complete inventory of the airport is essential to the success of the Master Plan because the findings and assumptions made in this plan are dependent upon collected information concerning conditions on and around the airport. This information was obtained through on-site investigations of the airport and interviews with airport management, Albuquerque International Sunport airport traffic control (ATC) personnel, and tenants. Information was also obtained from available documents and studies concerning the airport and the Albuquerque/Bernalillo County area. The layout of the existing airport is shown on Figure 3.1.

3.2 AIRPORT CONSTRUCTION HISTORY

The following is the construction sequence for Double Eagle II Airport:

1982 – Initial construction began on Double Eagle II Airport.

1983 – Initial construction was completed that included one runway (Runway 4/22 (7,400 feet x 100 feet)), parallel taxiway system, general aviation parking apron, and access road from I-40.

1984 – Construction was completed for Runway 17/35 (6,000 feet x 100 feet), parallel taxiway system, and T-hangar apron.

1985 – Construction was completed for airport commercial water system, fire protection system, sewer system, and airport maintenance building.

1988 – Paseo del Volcan widened to current width.

1989 – Additional fire pumps added to fire pump building.

1989 – Bode Aviation fixed base operators (FBO) main building (10,000-square-foot maintenance hangar and 3,000-square-foot office) is completed.

1989 – Helicopter hangar is completed (3,000-square-foot hangar with a 700-square-foot office).

1990 – Construction on a series of 6 T-hangar buildings begins. Hangar T1 is completed (18,500 square feet).

1991 – Construction of Hangar T2 is completed (18,500 square feet).

1991 – Construction of West Mesa Aviation FBO (originally Albuquerque Air Service) main building (14,050 square feet) and apron (3,000 square feet) is completed.

1992 – Construction of Hangar T3 is completed (18,500 square feet).

1993 – Construction of Hangar T4 is completed (18,500 square feet).

1993 – Construction of Sun Shade hangar (six individual single-engine aircraft storage spaces (7,992 square feet)) is completed.

1997 – Paseo del Volcan northern loop access road completed.

1998 – Construction of Hangars T5 and T6 is completed (18,500 square feet each).

1998 – Bode Aviation FBO adds 3,000 square feet to main building office space.

1998 - Bode Aviation FBO adds 10,000-square-foot bay storage hangar.

1999 – AWOS installation completed.

2000 – Bode Aviation bay storage hangar completed.

2001 – West Mesa Aviation T-hangars completed.

2001 – Bode Aviation maintenance hangar completed (10,000-square-foot hangar, 3,000-square-foot office).

2002 – West Mesa T-hangars completed (25,652 square feet).

2002 – West Mesa bay storage hangar completed (10,000 square feet).

2002 – West Mesa bay storage hangar completed (4,200 square feet).

3.3 AIRPORT CHARACTERISTICS

3.3.1 Airport Role/Classification

Under the Federal Aviation Administration's (FAA) National Plan of Integrated Airport Systems (NPIAS), Double Eagle II Airport is classified as a general aviation reliever airport. A general aviation reliever airport provides an alternative site for general aviation within a designated metropolitan area.

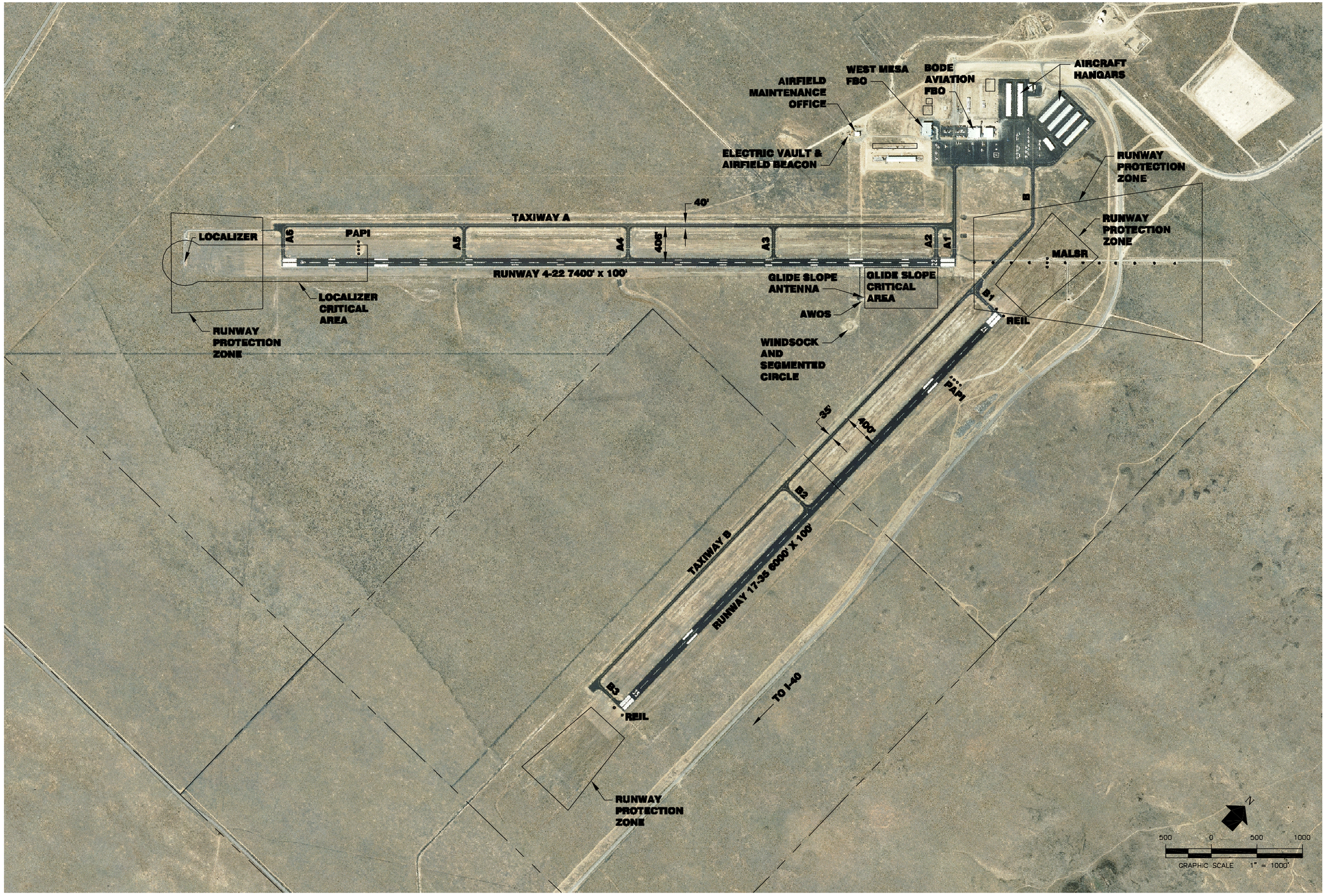
3.3.2 Double Eagle II Airport Aviation Users

As of March 2002, Double Eagle II Airport has two major FBOs: Bode Aviation and West Mesa Aviation. Both FBOs provide a complete line of FBO services to the general public. In addition, the Albuquerque Police Department (APD) Air Support Unit has an operation and maintenance facility on-site, which is sub-leased through Bode Aviation.

In the spring of 2000, Eclipse Aviation Corporation selected Double Eagle II Airport as the proposed site to build their aircraft manufacturing plant. Planning is currently underway to be followed by a two-year construction period. The scheduled Double Eagle II Airport manufacturing plant facility opening in January 2005.

3.4 AIRFIELD SYSTEM

Double Eagle II Airport's airfield system includes two runways. Double Eagle II Airport 's existing airfield facilities, as shown on Figure 3.1 and in Table 3.1, are discussed in the following paragraphs. Current development projects that are designed, funded, out for bid, or awarded are listed in this section and shown as completed in this Master Plan.



Double Eagle II Airport Master Plan

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EXISTING AIRFIELD FACILITIES

FIGURE: 3.1

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TABLE 3.1
EXISTING AIRFIELD PAVEMENT/LIGHTING EVALUATION
Double Eagle II Airport
Master Plan Study

Airfield Pavement	Size	Design Strength	Pavement Composition	Subgrade CBR	Effective Gradient	Date of Construction	Pavement Condition	Lighting	Lighting Condition	Runway End Elevation
Runways										
4/22	7,400' x 100'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	0.37%	1982	Good	MIRL	Fair	Runway 4: 5,837.0' Runway 22: 5,809.8'
17/35	6,000' x 100'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	0.12%	1984	Fair	MIRL	Fair	Runway 17: 5,805.4' Runway 35: 5,798.4'
Taxiways										
A	7,400' x 40'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1983	Good	MITL	Fair	---
A-1	1,000' x 40'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1983	Good	MITL	Fair	---
A-2	335' x 40'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1983	Good	MITL	Fair	---
A-3	335' x 40'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1983	Good	MITL	Fair	---
A-4	335' x 40'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1983	Good	MITL	Fair	---
A-5	335' x 40'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1983	Very Good	MITL	Fair	---
A-6	335' x 40'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1983	Good	MITL	Fair	---
B	7,594' x 35'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1984	Poor	MITL	Fair	---
B-1	315' x 35'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1984	Poor	MITL	Fair	---
B-2	315' x 35'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1984	Poor	MITL	Fair	---
B-3	315' x 35'	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1984	Fair	MITL	Fair	---
Aprons										
Transient Apron	24,800 s.y.	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1982/83	Fair	Floodlights	Good	---
Bode Aviation Parking Apron	28,700 s.y.	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1984/85	Fair	Floodlights	Good	---
West Mesa Aviation Parking Apron	3,000 s.y.	30S/45D	Bituminous Asphalt (2" AC, 8" AB)	13	---	1991	Fair	Floodlights	Good	---
Bode Aviation T-Hangar Pavement	---	---	Bituminous Asphalt (2" AC, 8" AB)	---	---	1984/85	Fair	N/A	N/A	---
West Mesa Aviation T-Hangar Pavement	---	---	Bituminous Asphalt (2" AC, 8" AB)	---	---	2001	Excellent	N/A	N/A	---

Note: Ground Elevations are based on NAVD 1988.
Source: Compiled from Airport Management Records by URS Corporation, 2001.

N/A = Not Applicable.
AC = Asphalt Concrete.
AB = Aggregate Base.

3.4.1 Pavements

Runway 4/22, 7,400 feet x 100 feet, is oriented northeast/southwest (46° 30'E True). Runway 17/35, 6,000 feet x 100 feet, is oriented north/south (00° 03'E True).

Each runway is served by a full-length, parallel taxiway located 400± feet (Taxiway "A" is 406 feet center-to-center) centerline-to-centerline distance from runway centerlines. Taxiway "A" is northwest of Runway 4/22 and includes six entrance/exit taxiways. Taxiway "B" is west of Runway 17/35 and includes three entrance/exit taxiways. Taxiway "A" is 40 feet in width and Taxiway "B" is 35 feet in width.

Public access aprons are located adjacent to each FBO facility.

Pavement design specifications indicate that pavements were designed to provide 30,000-pound single gear and 45,000-pound dual gear strengths. The existing pavement is in good to poor condition and will require rehabilitation in order to maintain existing conditions and support increased aircraft payloads.

3.4.2 Visual and Navigational Aids

The location of visual and navigational aids (NAVAIDS) are presented on Figure 3.1 and listed below.

Runways 4/22 and 17/35 are equipped with medium intensity runway edge lights (MIRL). Taxiways "A" and "B" are equipped with medium intensity taxiway edge lights (MITL).

Runway 22 is equipped with an instrument landing system (ILS), which includes a localizer, glide slope, a medium intensity approach lighting system with runway alignment indicator lights (MALSR), a middle marker, and an outer marker.

Other aids to navigation located on Double Eagle II Airport are as follows:

- PAPI – Runway 4;
- PAPI – Runway 17;
- REIL – Runway 17;
- REIL – Runway 35;
- Rotating Airways Beacon - Northwest of Taxiway "A";
- Segmented Circle - Collocated with the windsock near the glide slope southwest of Runway 22 threshold;
- Lighted Wind Cone - Located in segmented circle; and
- AWOS.

An inspection of existing NAVAIDS and lighting facilities was conducted as part of the inventory data collection. Conditions of these facilities are presented in Table 3.2. The NAVAIDS are in good condition with the exception of the lighted wind cone and airport beacon. The airfield lighting on both runway/taxiway systems is 20 years old and needs to be replaced.

TABLE 3.2
SUMMARY OF NAVIGATIONAL AIDS AND AIRFIELD LIGHTING
Double Eagle II Airport
Master Plan Study

Facility Type	Owner/Maintenance Responsibility	Initial Installation	Last Reconditioned	Current Condition
Navigational Aids				
Runway 22 Localizer	FAA	1986	2001	Excellent
Runway 22 Glide Slope	FAA	1986	2001	Excellent
Runway 22 MALSR	FAA	1987	---	Good
Runway 22 MM	FAA	1986	---	Good
Runway 22 OM	FAA	1986	---	Good
Runway 4 PAPI	FAA	1994	---	Good
Runway 17 PAPI	FAA	1994	---	Good
Runway 17 REIL	FAA	1987	---	
Runway 35 REIL	FAA	1987	---	Good
Segmented Circle	COA	1983	---	Good
Lighted Windcone	COA	1983	---	Fair
Rotating Beacon	COA	1983	---	Fair
AWOS	COA	1999	---	Good
Airfield Lighting				
Runway 4-22 Edge Lights	COA	1982	---	Fair
Taxiway “A” Edge Lights	COA	1982	---	Fair
Runway 17/35 Edge Lights	COA	1985	---	Fair
Taxiway “B” Edge Lights	COA	1985	---	Fair

Source: FAA Airway Facilities and SSE personnel, 2001; URS Corporation, 2001.

3.4.3 Electrical Vault

The entire airfield and apron complex is served by a single electrical vault which is located directly south of the airfield maintenance building. The vault has a 400 A main breaker and houses 7.5 KW regulators for each runway, taxiway system, and apron lighting. Vault power is routed to the airfield through two 6-inch conduits.

The vault building and its equipment are in good condition and adequately sized for the current lighting requirements. Power requirements for any future runway and taxiway extensions would require new regulators with increased capacities; however, the building itself is adequately sized to accommodate this new equipment. Any new runway or taxiway system would require either expansion of the current building or construction of a new building.

3.4.4 Airport Drainage

Drainage from both airfield and building areas at Double Eagle II Airport is controlled by a system of storm sewers and swales that transports stormwater runoff to on-airport retention ponds and ditches. These drainage ditches flow off-site to adjacent undeveloped areas. As land uses in this area change to more urban/suburban type uses (industrial and commercial), however, further drainage features may be necessary.

3.5 BUILDINGS/FACILITIES

The locations of buildings and major lease boundaries are shown on Figure 3.2.

3.5.1 FBO Bode Aviation

FBO Bode Aviation occupies a lease site of approximately 23 acres in front of and northeast of the auto parking lot. Bode Aviation offers a complete line of FBO services in airframe and power plant maintenance and repair, avionics, flight instruction, and aviation fueling. Within their lease area, Bode Aviation sub-leases to the APD Air Support Unit an operation and maintenance hangar. Buildings within their lease area are shown on Figure 3.2 and include the following:

1. **Main Office** - The FBO Administration Offices, customer service area, flight training, waiting rooms, and other miscellaneous space occupy approximately 6,100 square feet.

2. **Maintenance Hangar** - The Bode Aviation aircraft maintenance service hangar area occupies 10,000 square feet.

3. **Bay Storage Hangars** – Bode Aviation has two bay storage hangars. Each hangar consists of 10,000 square feet and houses medium twin and light jet aircraft.

4. **Helicopter Hangar** - The helicopter maintenance/hangar consists of 4,800 square feet (60 feet x 80 feet) and can service approximately four helicopters at one time. The APD Air Support Unit currently leases this hangar.

5. **T-Hangars** - Bode Aviation has six T-hangar buildings with a total of 96 aircraft storage units. The T-hangars house primarily single-engine aircraft, but can accommodate selected multi-engine aircraft.

6. **Sun Shade Hangar** - The shade hangar consists of 7,992 square feet and provides storage space for six single-engine aircraft.

7. **Fuel Storage** - Bode Aviation has a fuel storage facility located adjacent to the entrance road. Fuel storage tanks consist of:

   1 Jet A 20,000-gallon storage tank (constructed in 1986), and
   1 Avgas 20,000-gallon storage tank (constructed in 1986).

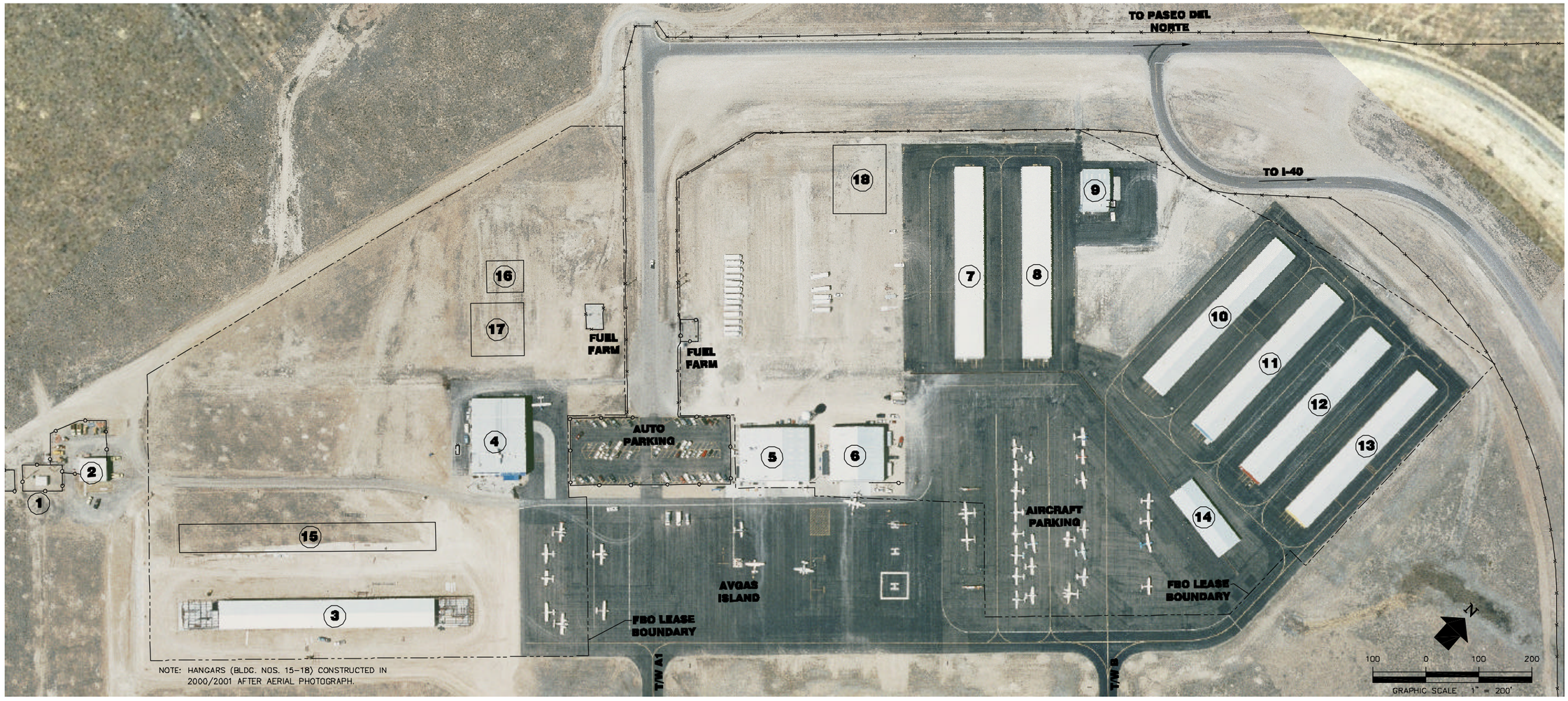
   In addition, they have three fuel trucks totaling approximately 5,750 gallons.

Bode Aviation Sub-Leases

1) APD Air Support Unit
2) Aviation Security, Inc. - aircraft storage hangars
3) Just Plane Storage - aircraft storage bay hangar
4) Bode Aviation Helicopter - helicopter services

Bode Aviation and Tenant Employees

1) Bode Aviation: 13 employees (11 full-time/2 part-time)
2) APD Air Support Unit: 10 employees
3) Aviation Security, Inc.: 1 employee
4) Just Plane Storage: 1 employee
5) Bode Aviation Helicopter: 8 employees



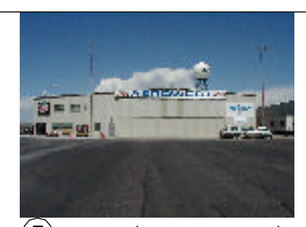
NOTE: HANGARS (BLDG. NOS. 15–18) CONSTRUCTED IN 2000/2001 AFTER AERIAL PHOTOGRAPH.

1 – AIRFIELD ELECTRICAL VAULT 360 S.F.

2 – AIRFIELD MAINTENANCE OFFICE 2,150 S.F.

3 – T–HANGER (22 UNITS) 30,250 S.F.

4 –FBO (WEST MESA AVIATION) OFFICE/HANGER 14,050 S.F.



5 – FBO (BODE AVIATION) OFFICE/HANGER 16,670 S.F.

6 – BAY HANGER 10,000 S.F.

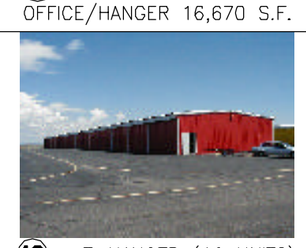
7 – T–HANGER (16 UNITS) 18,720 S.F.

8 – T–HANGER (16 UNITS) 18,720 S.F.

9 – APD AIR SUPPORT UNIT 3,700 S.F.

10 – T–HANGER (16 UNITS) 18,720 S.F.

11 – T–HANGER (16 UNITS) 18,720 S.F.



12 – T–HANGER (16 UNITS) 18,720 S.F.

13 – T–HANGER (16 UNITS) 18,720 S.F.

14 – SHADE COVER 8,000 S.F.

Double Eagle II Airport Master Plan

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BUILDING FACILITIES

FIGURE: 3.2

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3.5.2 FBO West Mesa Aviation

FBO West Mesa Aviation (WMA) is owned and operated by ARV, Inc. They occupy a 27-acre lease area southwest of the auto parking lot. They offer a complete line of FBO services including airframe and power plant maintenance and repair, avionics, flight instruction, aircraft charters and rentals, and aviation fueling. Avionics services are provided through a sub-lease with AirOne Avionics. Buildings within their lease area are shown on Figure 3.2 and include the following:

1. **Office, Flight Shop, Cafe, and Lounge** - WMA Administration and Operations Office, flight shop, Prop Wash Café, and lounge occupy a 4,000-square-foot building (100 feet x 40 feet).

2. **Maintenance and Repair Hangar** - The maintenance and repair hangar occupies 10,000 square feet (100 feet x 100 feet).

3. **T-Hangars** – WMA operates two 21-unit (26,625 square-foot) T-hangar facilities.

4. **Fuel Storage** - A fuel storage area operated by WMA is located adjacent to and southwest of the entrance road. Fuel storage tanks consist of:

   1 Avgas 20,000-gallon storage tank, and
   1 Jet A 20,000-gallon storage tank (not in operation at this time).

   In addition, they have 1 truck (1,500 gallons).

West Mesa Aviation Sub-Lease

1) Safe-Tee Hangars - aircraft storage T-hangars
2) Air One Systems - avionics
3) El Molino Rojo (Prop-Wash Café) - coffee shop
4) Aircraft Associates - aircraft sales

West Mesa Aviation and Tenant Employees

1) West Mesa Aviation: 13 employees (5 full-time/8 part-time)
2) Safe-Tee Hangars - 1 employee
3) El Molino Rojo (Prop-Wash Café) - 1 employee
4) Aircraft Associates - 1 employee

3.5.3 Eclipse Aviation Corporation

Eclipse Aviation Corporation will own a 150-acre parcel of vacant land adjacent to the west side of Runway 17/35. Site and facility planning are currently underway.

3.5.4 Airport Administration/Airport Maintenance Facility

Currently, the Double Eagle II Airport Administration Office and Airport Maintenance Facility are collocated. The administration office consists of 400 square feet. The maintenance facility consists of 1,700 square feet. The maintenance facility also occupies an area approximately 100 feet x 70 feet for field equipment storage.

Staff consists of:

- Airport Management – 1 person
- Airport Maintenance – 2 people

3.5.5 Auto Parking

A designated public auto parking lot is located between the two existing FBOs as shown on Figure 3.2. The parking lot is 300 feet x 125 feet in size. The number of parking spaces marked is 81.

3.5.6 Ground Transportation

There is no public ground transportation service to Double Eagle II Airport at this time. Private limousine, taxi, and rental cars are available "on-call."

3.6 UTILITIES

On- and off-site area infrastructure is depicted on Figures 3.3 and 3.4, respectively. A brief description of these areas is presented below.

3.6.1 Electric Service

Public Service Company of New Mexico supplies electrical power to Double Eagle II Airport, as well as the surrounding community. All wiring, conduit, and controls for airfield lighting at Double Eagle II Airport terminate at the electrical vault. Electronic navigation aids are powered from a separate FAA meter located adjacent to the electrical vault.

3.6.2 Water Service

A private water well system supplies non-potable water to Double Eagle II Airport. A 120-gallon per minute (gpm) well, water tanks, and a pump house for both commercial water and fire protection are located approximately 1,500 feet north of the apron complex.

The commercial water system consists of a 15,000-gallon storage tank (27 feet tall, 15 feet in diameter) with pressure tanks and a 60-gpm booster-pump. The water is piped to the FBO and airfield maintenance building at 80 to 50 pounds per square inch (psi) through a single 8-inch loop.

The fire protection system consists of a 500,000-gallon storage tank (32 feet tall, 52 feet in diameter) with a 3,500-gpm booster-pump. A series of hydrants are located throughout the FBO and maintenance building areas and are served by a single 20-inch diameter loop.

3.6.3 Sewage

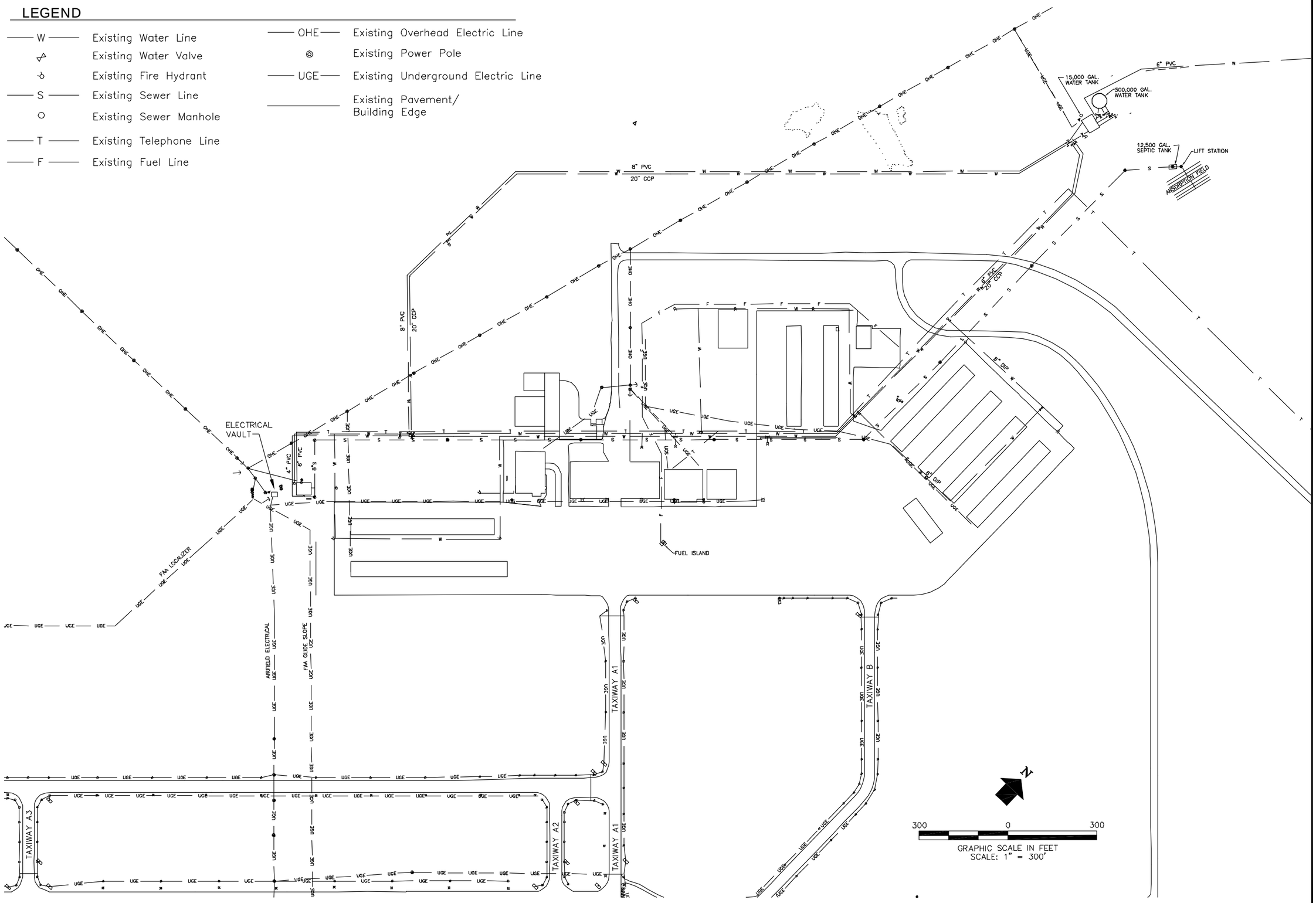
The sewage system at Double Eagle II Airport consists of a private on-site septic system. The system is composed of an 8-inch transmission line, 120-gpm lift station, septic tank, and a 200-foot x 110-foot leach field.

3.6.4 Telephone Service

U.S. West provides telephone communication services at Double Eagle II Airport.

LEGEND

- W — Existing Water Line
- Existing Water Valve
- Existing Fire Hydrant
- S — Existing Sewer Line
- Existing Sewer Manhole
- T — Existing Telephone Line
- F — Existing Fuel Line
- OHE — Existing Overhead Electric Line
- Existing Power Pole
- UGE — Existing Underground Electric Line
- Existing Pavement/ Building Edge



J:\DOUBLE EAGLE II\EXHIBITS\FIG 3.3.DWG 07/17/02 11:17

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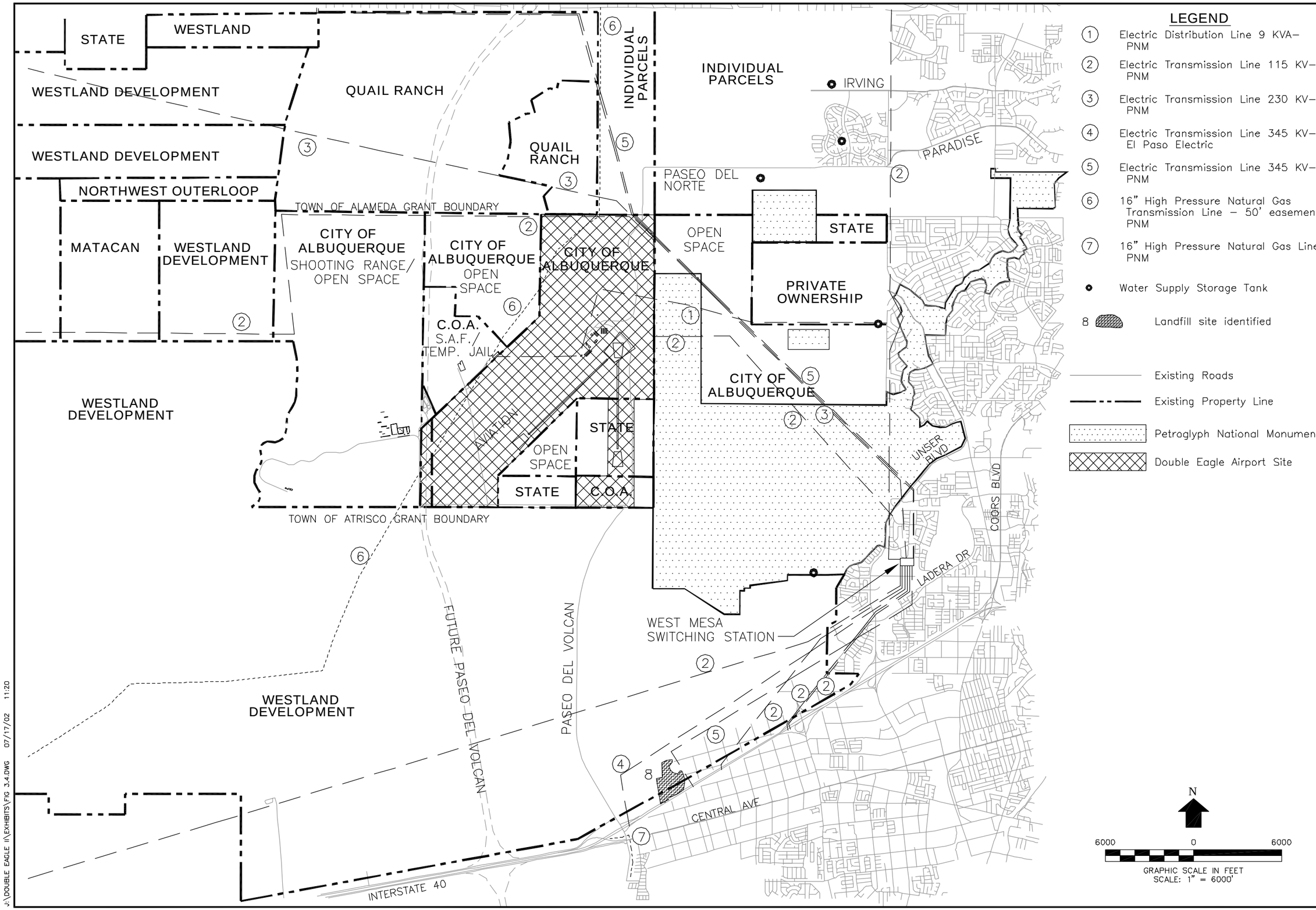
Double Eagle II Airport Master Plan

ON-SITE INFRASTRUCTURE

FIGURE: 3.3



Double Eagle II Airport Master Plan

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EXISTING OFF-SITE INFRASTRUCTURE

FIGURE: 3.4

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3.6.5 Natural Gas Service

There is no natural gas service currently provided to Double Eagle II Airport. There is, however, a 6-inch pressure line near the airport for future tie-in considerations.

3.7 AIRSPACE, AIR TRAFFIC CONTROL, AND AIRFIELD OPERATIONS

ATC's primary responsibility is to ensure a safe and orderly flow of aircraft between airports. To support this responsibility, the FAA has divided the airspace overlying the United States, referred to as the National Airspace System (NAS), into different jurisdictions or "classes" of airspace and established specific procedures and ATC services for each class. Currently, airspace in the NAS is designated as Class A, B, C, D, E, G, or special use airspace (SUA). ATC procedures for each of these airspace designations are established in accordance with regulations and guidelines prescribed in the Federal Aviation Regulation's (FAR) *Aeronautical Information Manual*, the *Air Traffic Controller Handbook (*FAA Order 7110.65M*)*, and other directives, letters of agreement, notices, and orders. Furthermore, to ensure that the airspace can be navigated safely the FAA has established regulations and guidelines under Part 77, *Objects Affecting Navigable Airspace* and *United States Standard for Terminal Instrument Procedures* (TERPs) (FAA Order 8260.3B). A brief description of these airspace matters, how they apply to ATC functions, and how operations are conducted at Double Eagle II Airport is provided in the following paragraphs.

3.7.1 Airspace

Controlled airspace is designated as Class A, B, C, D, or E. Each of these airspace classes has different dimensions, purposes, requirements, and ATC services. A general depiction of these various classes of airspace and their relationships are provided on Figure 3.5.

3.7.1.1 Class A

As illustrated on Figure 3.5, Class A airspace covers the entire United States and encompasses all airspace from 18,000 feet to 60,000 feet above Double Eagle II Airport. Aircraft flying in Class A airspace must operate under instrument flight rules (IFRs) and are operating in the en-route structure of the NAS.

3.7.1.2 Class B

Class B airspace is designated around the nation's busiest airports in terms of IFR operations or passenger enplanements. No areas of Class B airspace are located in proximity to Double Eagle II Airport. Aircraft operations within Class B airspace are subject to certain operating, pilot, and equipment rules. Furthermore, an ATC clearance is required prior to operating an aircraft within Class B airspace. All aircraft that have received such clearance are provided separation services by the ATC. The configuration of each Class B area is individually tailored for each airport and consists of a surface area and two or more layers (some Class B airspace areas resemble upside-down wedding cakes as depicted on Figure 3.5), and is designed to contain all published instrument procedures.

3.7.1.3 Class C

Class C airspace passes within 1 nautical mile (nm) of Double Eagle II Airport and is the airspace surrounding Albuquerque International Sunport, which is located 11 nms to the southeast of Double Eagle II Airport. Class C airspace is defined as that airspace from the surface to 4,000 feet above the airport elevation

surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a 5-nm radius core surface area that extends from the surface up to 4,000 feet above the airport elevation, and a 10-nm radius shelf area that extends from 1,200 feet to 4,000 feet above the airport elevation.

3.7.1.4 Class D

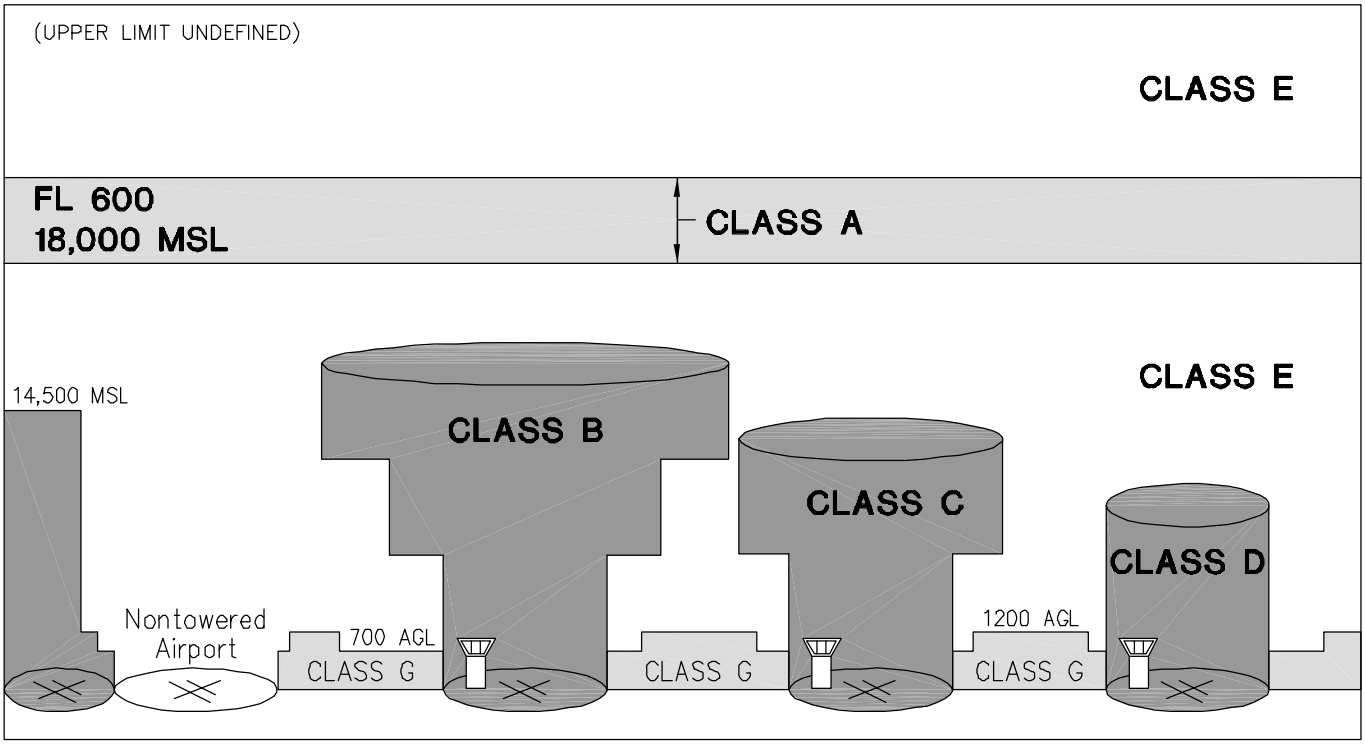
The closest Class D airspace to Double Eagle II Airport is located 43 nms to the northeast of Double Eagle II Airport, surrounding the Santa Fe Municipal Airport. Generally, Class D airspace includes the airspace from the airport surface to 2,500 feet above the airport elevation surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Normally, Class D airspace extends out to 4 nms from its associated airport. Areas of Class D airspace that may need to be extended to accommodate an instrument procedure usually consist of a Class E extension. Class D airspace is depicted on Figure 3.6 by a blue dashed circle surrounding the designated airport. Magenta dashed lines would depict any Class E extensions to Class D. No Class E extensions are displayed on Figure 3.6. Class E extensions are usually established to encompass airspace required to conduct instrument procedures. Aircraft operating in Class D airspace must maintain radio contact with the appropriate airport traffic control tower while operating in the airspace. Pilots must also abide by certain operating and equipment rules while operating within Class D airspace.

3.7.1.5 Class E

Double Eagle II Airport is surrounded by Class E airspace. Class E airspace includes all controlled airspace that is not classified as A, B, C, or D. Class E airspace has no special restrictions with respect to pilot or aircraft equipment rules. Although Double Eagle II Airport is located in Class E airspace, because of its lack of a control tower it is considered an uncontrolled airport. However, it is controlled airspace, meaning that aircraft can be provided with ATC services, which in the case of Double Eagle II Airport is provided by the Albuquerque International Sunport Terminal Radar Approach Control (TRACON). Two-way radio communications are not required in the traffic pattern, although it is a good operating practice for pilots to transmit their intentions on the published UNICOM Frequency for Double Eagle II Airport of 122.8. Double Eagle II Airport is uncontrolled only from the standpoint that aircraft are not issued a clearance for takeoff or landing. However, the Albuquerque International Sunport TRACON upon radio contact and radar identification of participating aircraft controls IFR operations within the Class E airspace. VFR aircraft are not required to contact Albuquerque International Sunport TRACON. VFR aircraft are responsible for their own separation with other aircraft. Figure 3.5 depicts Class E airspace as a magenta band surrounding Double Eagle II Airport. This magenta band represents were the floor of Class E changes from the surface to 700 feet above ground level (agl) as displayed on Figure 3.4 for the non-towered airport.

3.7.1.6 Class G

Class G airspace is uncontrolled airspace. It consists of all airspace that is not classified as A, B, C, D, or E. Class G's relationship with the other classes of airspace can be seen on Figure 3.4. Generally, Class G ends at 1,200 feet agl, except for transition areas surrounding airports, where the ceiling of Class G is 700 feet agl.



LEGEND

MSL – MEAN SEA LEVEL
AGL – ABOVE GROUND LEVEL
FL – FLIGHT LEVEL

Double Eagle II Airport Master Plan

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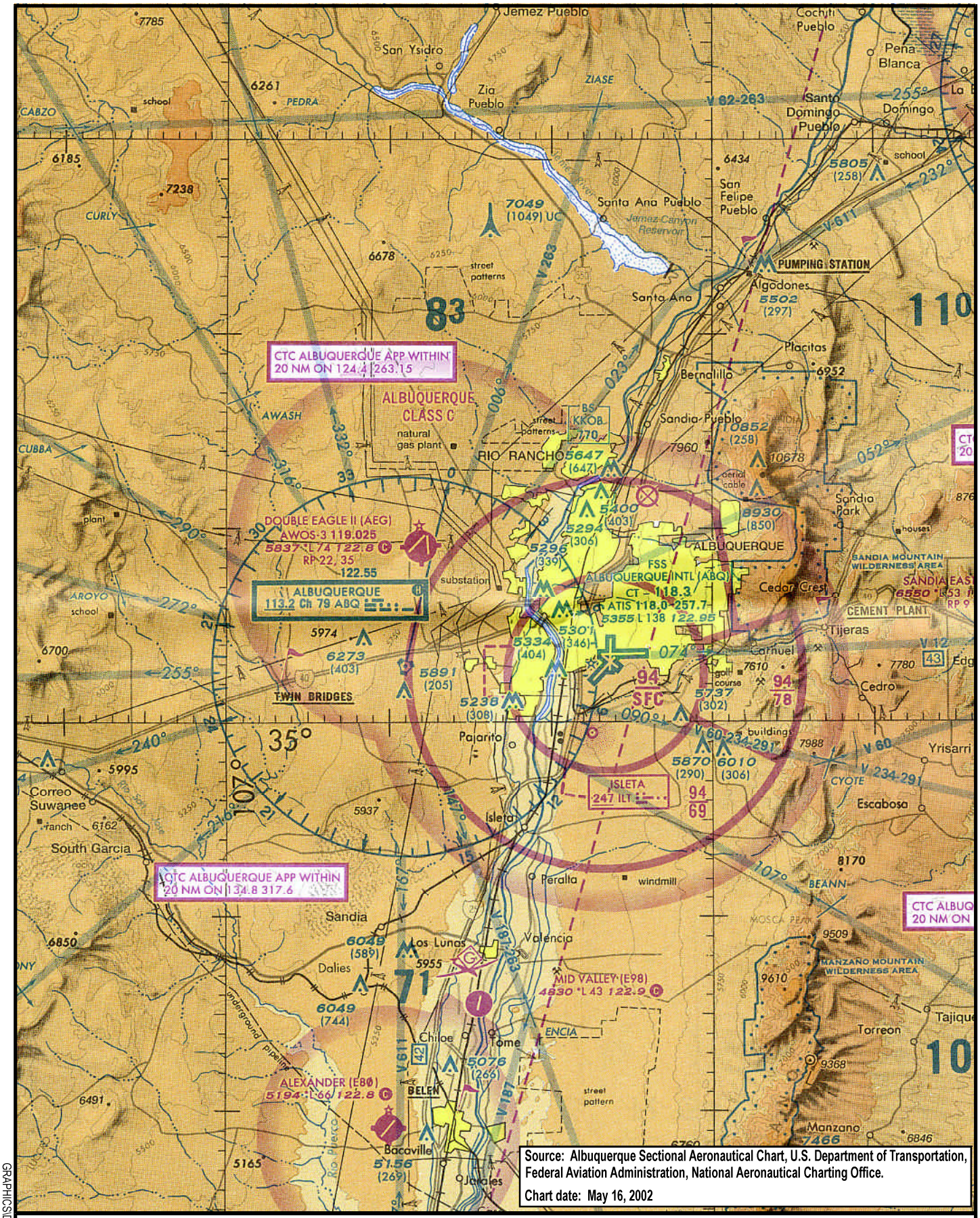
AIRSPACE CLASSES

FIGURE: 3.5

J:\DOUBLE EAGLE II\EXHIBITS\FIG 3.5.DWG 07/17/02 11:23



Source: Albuquerque Sectional Aeronautical Chart, U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office.

Chart date: May 16, 2002

Double Eagle II
Airport Master Plan

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SECTIONAL CHART

FIGURE: 3.6

GRAPHICS\DOUBLEEAGLEII_FIG-3-6.AI

3.7.1.7 Special Use Airspace

Special Use Airspace (SUA) consists of Prohibited Areas, Restricted Areas, Warning Areas, Military Operations Areas (MOAs), Alert Areas, and Controlled Firing Areas. No SUAs are located in the immediate vicinity of Double Eagle II Airport. The closest SUA is Restricted Area R-5101 located 45 nms to the northeast of Double Eagle II Airport. Restricted Areas contain airspace identified by an area on the surface of the earth within which the flight of aircraft, while not wholly prohibited, is subject to restrictions. Restricted Areas denote the existence of unusual, often invisible, hazards to aircraft such as artillery firing, aerial gunnery, or guided missiles. The closest MOA is the CATO MOA located 54 nms to the southwest. MOAs are established for separating certain military training activities from IFR traffic. Whenever an MOA is being used, nonparticipating IFR traffic (aircraft transitioning the MOA) may be cleared through the MOA if IFR separation can be provided by ATC. Otherwise, ATC will reroute or restrict nonparticipating IFR traffic. There are no Prohibited Areas located in close proximity to Double Eagle II Airport. Prohibited Areas are of defined dimensions and identified by an area on the surface of the earth within which the flight of aircraft is prohibited. Such areas are established for security or other reasons associated with the national welfare. These areas are published in the Federal Register and are depicted on aeronautical charts.

3.7.2 Objects Affecting Navigable Airspace

Title 14 of the Code of Federal Regulations Part 77 (14 CFR Part 77) establishes standards regarding objects that may affect navigable airspace. The standards apply to the use of navigable airspace by aircraft and to existing air navigation facilities, such as an air navigation aid, airport, Federal airway, instrument approach or departure procedure, or approved off airway route. Additionally, they apply to a planned facility or use, or a change in an existing facility or use. Specifically, 14 CFR Part 77 provides guidance which:

- Establishes standards for determining obstructions in navigable airspace;
- Sets forth the requirements for notice to the Administrator of certain proposed construction or alteration;
- Provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace;
- Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and
- Provides for establishing antenna farm areas.

Furthermore, 14 CFR Part 77 applies to the following type of obstructions and actions:

- Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used therein, and apparatus of a permanent or temporary character; and
- Alteration of any permanent or temporary existing structure by a change in its height (including appurtenances) or lateral dimensions, including equipment or materials used therein.

14 CFR Part 77 requires notice be given to the FAA Administrator before the construction or alteration of certain structures. Upon notice, the FAA will initiate an aeronautical study to determine the safety impact of the potential obstruction. This determination is made, in part, after evaluating the potential obstruction's

relationship to imaginary surfaces defined in 14 CFR Part 77. At the completion of the FAA's initial evaluation, an FAA determination on the effect of a potential obstruction on navigable airspace may result in one of the following findings:

The proposed structure or alteration:

- Would not exceed any standard of 14 CFR Part 77 and would not be a hazard to air navigation;
- Would exceed a standard of 14 CFR Part 77 but would not be a hazard to air navigation; or
- Would exceed a standard of 14 CFR Part 77 and further aeronautical study is necessary to determine whether it would be a hazard to air navigation, that the sponsor may request within 30 days that further study, and that, pending completion of any further study, it is presumed the construction or alteration would be a hazard to air navigation.

The imaginary surfaces defined in 14 CFR Part 77 are listed below and depicted on Figure 3.7.

Horizontal surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

(1) 5,000 feet for all runways designated as utility or visual; or

(2) 10,000 feet for all other runways. The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

Conical surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Primary surface. A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; but when the runway has no specially prepared hard surface or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of a primary surface is:

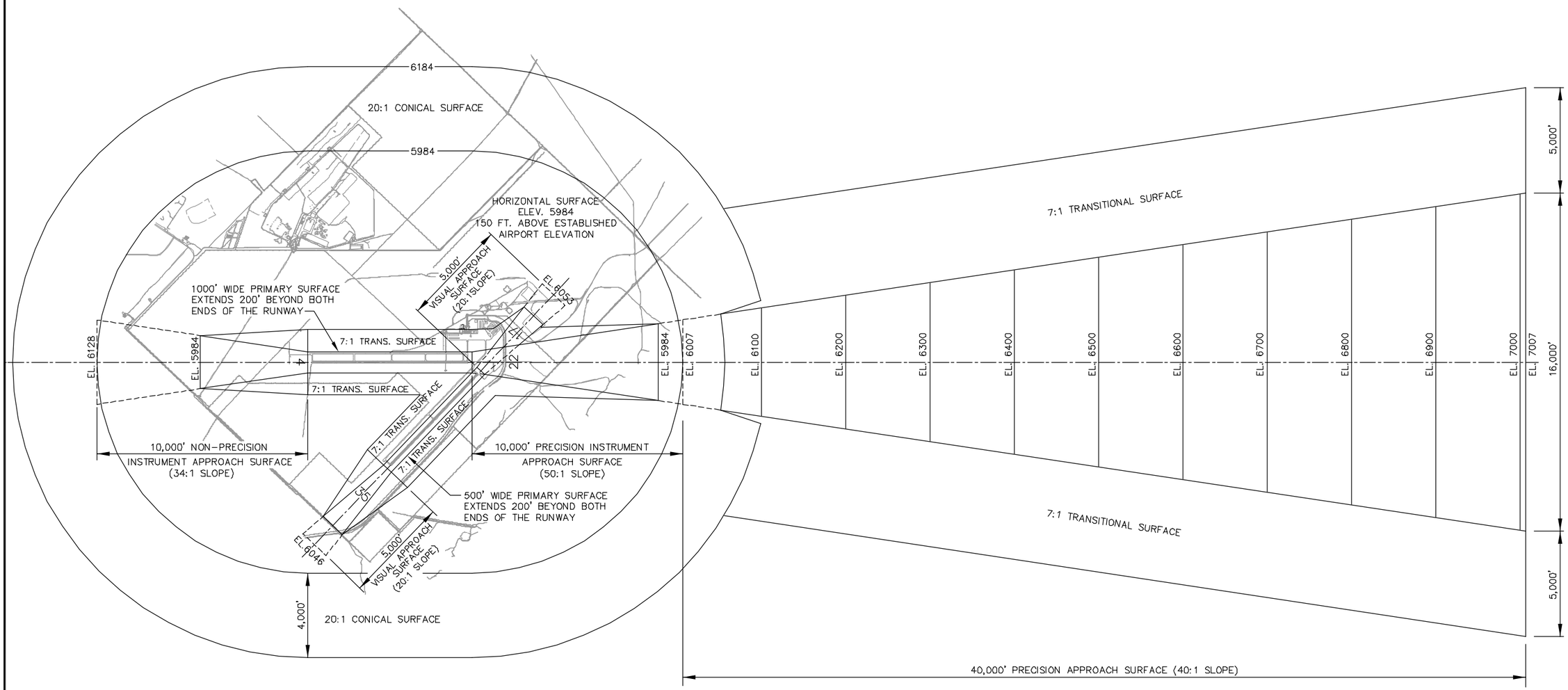
(1) 250 feet for utility runways having only visual approaches.

(2) 500 feet for utility runways having non-precision instrument approaches.

(3) For other than utility runways, the width is:

  (i) 500 feet for visual runways having only visual approaches.

  (ii) 500 feet for non-precision instrument runways having visibility minimums greater than 0.75-statute mile.



RUNWAY END	RUNWAY END ELEVATION (FEET)	FAR 77 RUNWAY CATEGORY	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	RADIUS OF HORIZONTAL SURFACE	APPROACH SURFACE WIDTH AT END	APPROACH SURFACE LENGTH	APPROACH SLOPE
4	5837.0	NON-PRECISION	1,000'	10,000'	4,000'	10,000'	34:1
22	5809.8	PRECISION INSTRUMENT	1,000'	10,000'	50:1 – 4,000' 40:1 – 26,000'	50,000'	50:1 10,000'; 40:1 40,0000'
17	5805.4	VISUAL	500'	5,000'	1,500'	5,000'	20:1
35	5798.4	VISUAL	500'	5,000'	1,500'	5,000'	20:1

NOTE: ALL ELEVATIONS ARE NAVD 1987.

SOURCE: FEDERAL AVIATION REGULATIONS PART 77 OBJECT AFFECTING NAVIGABLE AIRSPACE

N

5000 0 5000

GRAPHIC SCALE IN FEET
SCALE: 1" = 5000'

Double Eagle II Airport Master Plan

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EXISTING AIRSPACE PLAN VIEW (FAR AIRPORT IMAGINARY SURFACES)

FIGURE: 3.7

J:\DOUBLE EAGLE II\EXHIBITS\FIG 3.7.DWG 07/17/02 11:33

(iii) 1,000 feet for a non-precision instrument runway having a non-precision instrument approach with visibility minimums as low as 0.75-statute mile, and for precision instrument runways.

The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of that runway.

Approach surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

(1) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:

(i) 1,250 feet for that end of a utility runway with only visual approaches;

(ii) 1,500 feet for that end of a runway other than a utility runway with only visual approaches;

(iii) 2,000 feet for that end of a utility runway with a non-precision instrument approach;

(iv) 3,500 feet for that end of a non-precision instrument runway other than utility, having visibility minimums greater than 0.75-statute mile;

(v) 4,000 feet for that end of a non-precision instrument runway other than utility, having a non-precision instrument approach with visibility minimums as low as 0.75-statute mile; and

(vi) 16,000 feet for precision instrument runways.

(2) The approach surface extends for a horizontal distance of:

(i) 5,000 feet at a slope of 20 to 1 for all utility and visual runways;

(ii) 10,000 feet at a slope of 34 to 1 for all non-precision instrument runways other than utility; and

(iii) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.

(3) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

Transitional surface. These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extends at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

The application of these imaginary surfaces as they pertain to Double Eagle II Airport is depicted on Figure 3.7 and presented in Table 3.3.

TABLE 3.3
APPROACH SURFACES AND RUNWAY PROTECTION ZONES (1991)
Double Eagle II Airport
Master Plan Study

Threshold Approach	Instrument Approach Procedures[1]	Approach Slope	Approach Surface Dimensions[2] (feet)			Runway Protection Zone Dimensions[3] (feet)			Area (Acres)
			Length	Inner Width	Outer Width	Length	Inner Width	Outer Width	
4	Visual*	34:1	10,000	1,000	4,000	1,700	1,000	1,510	48.978
22	ILS (Inner)	50:1	10,000	1,000	4,000	2,500	1,000	1,750	78.914
17	Visual	20:1	5,000	500	1,500	1,000	500	700	13.770
35	Visual	20:1	5,000	500	1,500	1,000	500	700	13.770

1 U.S. Government Instrument Approach Procedures, Southwest Volume 1 of 2, May 30, 1991.
2 Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*.
3 FAA AC 150/5300-13, *Airport Design*.

* Useable as backcourse, non-precision.

Source: Compiled by URS Corporation.

3.7.3 Air Traffic Control

ATC in the United States is managed by three primary types of facilities: Air Route Traffic Control Centers (ARTCC), TRACON, and airport traffic control towers. Presently, Double Eagle II Airport does not have an operating airport traffic control tower. A brief overview of these facilities and how they control flight to and from Double Eagle II Airport is provided in the following paragraphs.

3.7.3.1 Air Route Traffic Control Centers

En-route airspace, which is a combination of Class A and Class E airspace, in the United States is managed by a series of ARTCCs, commonly referred to as "centers", located in major cities across the United States. These centers control the route of flight between airports and provide separation services, traffic advisories, and weather advisories for aircraft operated under IFR. On a workload-permitting basis, the centers also provide traffic and weather advisories for aircraft operated under visual flight rules (VFR). The locations of these centers and the approximate boundaries of the airspace they control are illustrated on Figure 3.8. En-route airspace near Double Eagle II Airport is controlled by Albuquerque (ZAB) ARTCC, which is the shaded area displayed on Figure 3.8. ZAB ARTCC controls traffic up to Albuquerque International Sunport, TRACON's airspace boundary.

3.7.3.2 Terminal Radar Approach Control

Aircraft arriving to or departing from Double Eagle II Airport and other airports surrounding Double Eagle II Airport are controlled by the Albuquerque International Sunport TRACON. The purpose of the TRACON is to separate and sequence IFR and participating VFR arriving and departing flights. The Albuquerque International Sunport TRACON controls airspace within a 30-mile radius of Albuquerque International Sunport up to an altitude of 9,400 feet. The TRACON facility is located at the Albuquerque International Sunport on the Kirtland AFB portion of the airport. Control of departing IFR aircraft is transferred from Albuquerque International Sunport TRACON to ZAB ARTCC upon reaching the Albuquerque International Sunport TRACON's airspace boundary. VFR aircraft receiving traffic advisories from the Albuquerque International Sunport TRACON may continue to receive traffic advisories upon exiting Albuquerque International Sunport TRACON's airspace from ZAB ARTCC on a controller workload-permitting basis.

3.7.4 Terminal Flight Procedures

Within the terminal airspace surrounding Double Eagle II Airport, a number of published flight procedures affect how the majority of aircraft are operated. These procedures are described in the following paragraphs.

3.7.4.1 Departure Procedures

Double Eagle II Airport has published departure procedures (DPs) for IFR aircraft to follow on departure. DPs provide information for pilots to transition from the terminal to the en-route airspace structure. The primary reason a DP is designed and published is to provide obstacle clearance protection to aircraft in Instrument Meteorological Conditions (IMC). A secondary reason, at busier airports, is to increase efficiency and reduce communications and departure delays. The first reason is why DPs are used at Double Eagle II Airport. The DP consists of the following guidance as found in the U.S. Terminal Procedures, Southwest Volume 1 of 2, effective 24 February 2000: comply with radar vectors; on all runways turn left/right as directed by Albuquerque International Sunport VORTAC. Aircraft departing on Albuquerque International Sunport VORTAC R-090 clockwise through R-023 climb on course. Departures on Albuquerque International Sunport

VORTAC R-024 clockwise through R-089 climb in Albuquerque International Sunport holding pattern (hold west, left turns, 077 inbound) to cross Albuquerque International Sunport VORTAC at or above airway minimum en-route altitude/minimum crossing altitude.

3.7.4.2 Instrument Approach Procedures

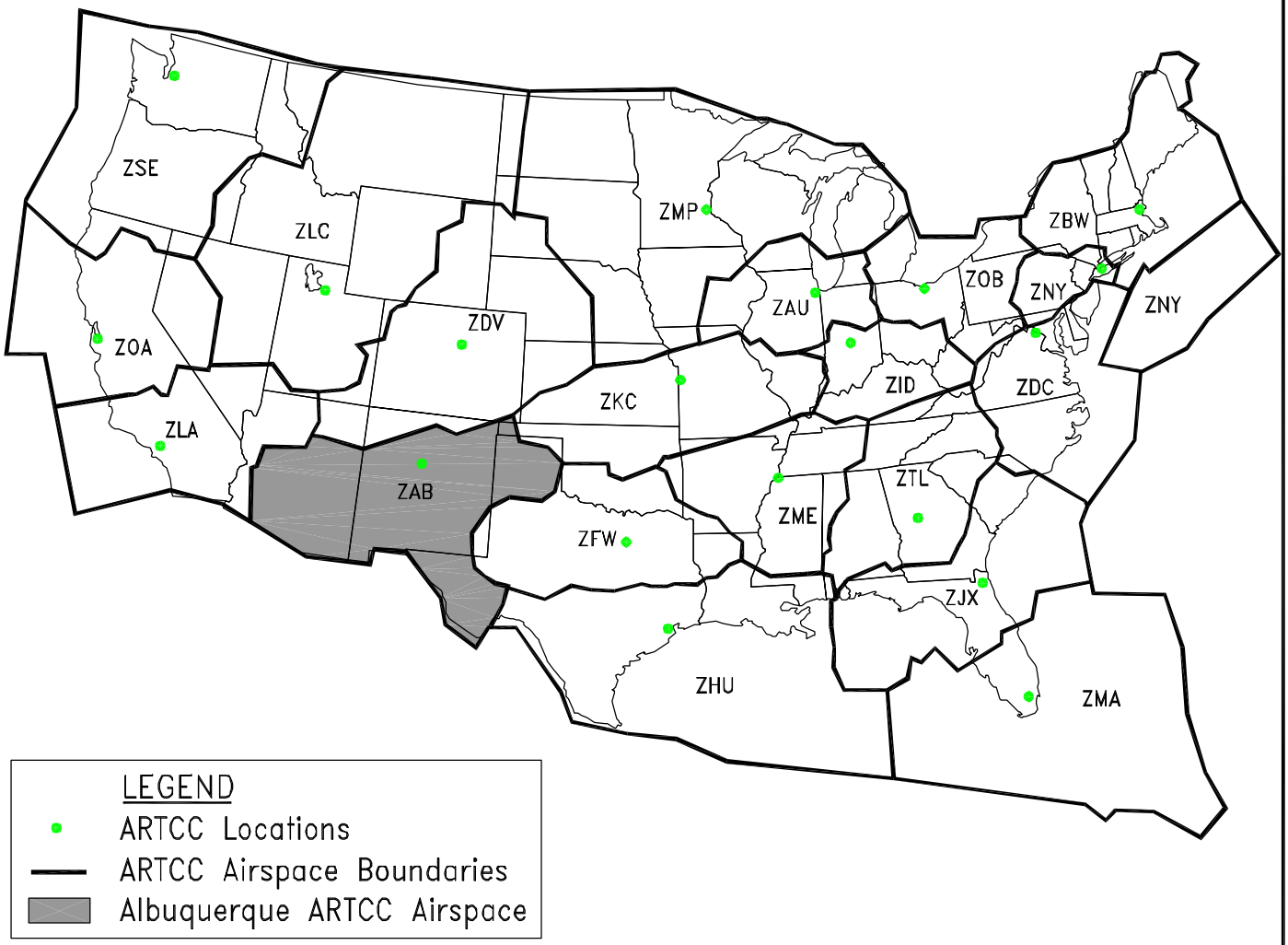
Instrument Approach Procedures (IAPs) are navigational procedures designed to align an aircraft with a runway for landing. All IAPs in the United States are based on joint civil and military criteria contained in the U.S. Standard for TERPs. The design of IAPs based on criteria contained in TERPS, takes into account the interrelationship between airports, facilities and the surrounding environment, terrain, obstacles, noise sensitivity, etc. Appropriate altitudes, courses, headings, distances, and other limitations are specified and, once approved, the procedures are published and distributed by government and commercial cartographers as instrument approach charts.

There are two general categories of IAPs: precision or non-precision. A precision IAP provides both horizontal and vertical navigation guidance, as well as range (distance) information. A non-precision IAP provides only horizontal navigation guidance and some may provide range information. Range information may be provided in the form of marker beacons, if an ILS, distance-measuring equipment (DME), or from Global Positioning System (GPS) equipment. Precision approaches include the ILS, the Transponder Landing System, the Microwave Landing System, Precision Approach Radar (PAR), and the GPS Landing System (GLS). The GLS is under development and is scheduled for implementation within the next two years. The MLS and TLS have been abandoned by the FAA for any wide-scale utilization pending the development and use of the GLS. The PAR is used primarily by the military and will normally be found only in conjunction with military installations. Precision approaches are further grouped into three categories (Categories I through III) based on the precision IAP's minimum landing weather requirements. The lowest landing weather minimums for a Category I (CAT-I) precision approach is a 200-foot ceiling and a 0.5-mile visibility. The lowest landing weather minimums for a Category II (CAT-II) approach is a 100-foot ceiling and 1,200-foot visibility. The lowest landing weather minimums for a Category III (CAT-III) IAP is as low as zero feet ceiling and zero visibility. Non-precision approaches are based on the following type of navigational aids: non-direction beacon (NDB), very high frequency omni-directional range (VOR), tactical air navigation station (TAC), airport surveillance radar (ASR), GPS, and Random Navigation (RNAV). Recently, the FAA has been classifying and publishing RNAV approaches in two varieties: VOR DME based and GPS based. The title of the approach will reveal which navigational aid is used to define the RNAV IAP. The lowest landing weather minimums for a non-precision IAP is a ceiling of 250 feet and visibility of 0.5 mile, although most non-precision IAPs have published minimums that are higher.

Double Eagle II Airport has two published IAPs: an ILS and a GPS approach to Runway 22. Figures 3.9 and 3.10 depict these two IAPs as published in the U.S. Terminal Procedures, Southwest Volume 1 of 2, effective 24 February 2000.

3.7.5 Airfield Operations

A description of airfield operations as it pertains to runway utilization, taxi routes, and taxiway utilization is presented in the following paragraphs.



Double Eagle II Airport Master Plan

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ARTCC'S & ENROUTE AIRSPACE

FIGURE: 3.8

J:\DOUBLE EAGLE II\EXHIBITS\FIG 3.8.DWG 07/17/02 11:35

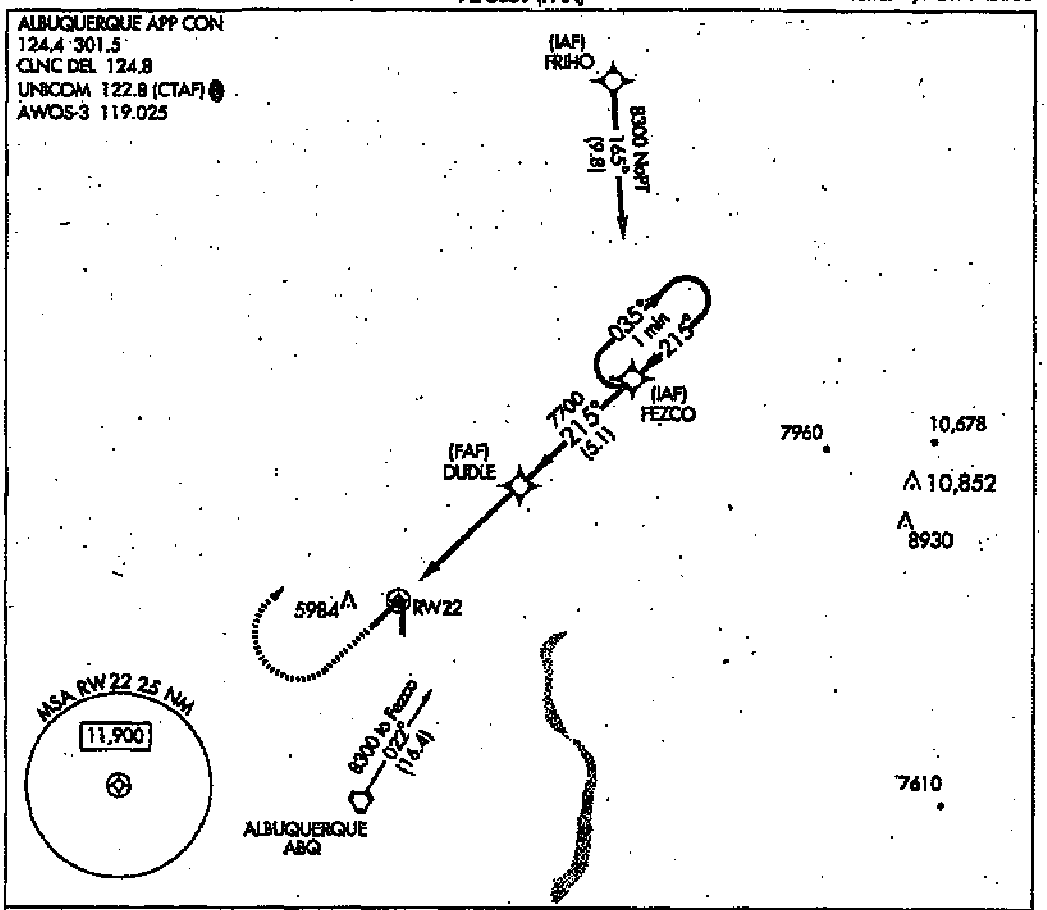
Orig 99308

GPS RWY 22

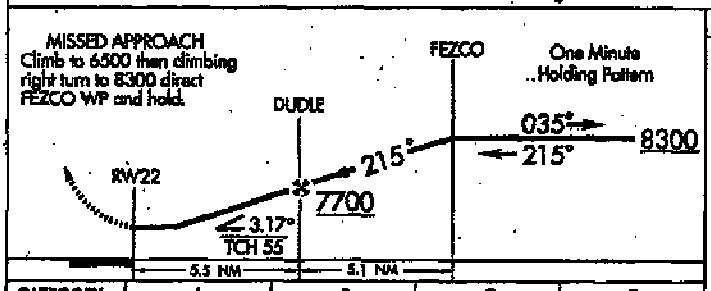
AL-6859 (FAAA)

ALBUQUERQUE/DOUBLE EAGLE II (AEG)
ALBUQUERQUE, NEW MEXICO

ALBUQUERQUE APP CON
124.4 301.5
CLNC DEL 124.8
UNICOM 122.8 (CTAF)
AWOS-3 119.025



MISSED APPROACH
Climb to 6500 then climbing right turn to 8300 direct FEZCO WP and hold.



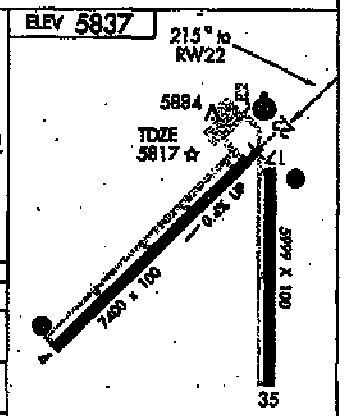
CATEGORY	A	B	C	D
S-22	6140-½ 323 (400-½)			6140-1 323 (400-1)
CIRCLING	6340-1 503 (600-1)		6340-1½ 503 (600-1½)	6400-2 563 (600-2)

Inoperative table does not apply to S-22 Cat D.

▼

▲ NA

ELEV 5837



REIL Rwys 17 and 35
MIRL Rwys 4-22 and 17-35

35°09' N - 106°48' W

GPS RWY 22
Orig 99308

ALBUQUERQUE, NEW MEXICO
ALBUQUERQUE/DOUBLE EAGLE II (AEG)

J:\DOUBLE EAGLE II\EXHIBITS\FIG 3.9.DWG 07/17/02 11:45

Double Eagle II Airport Master Plan

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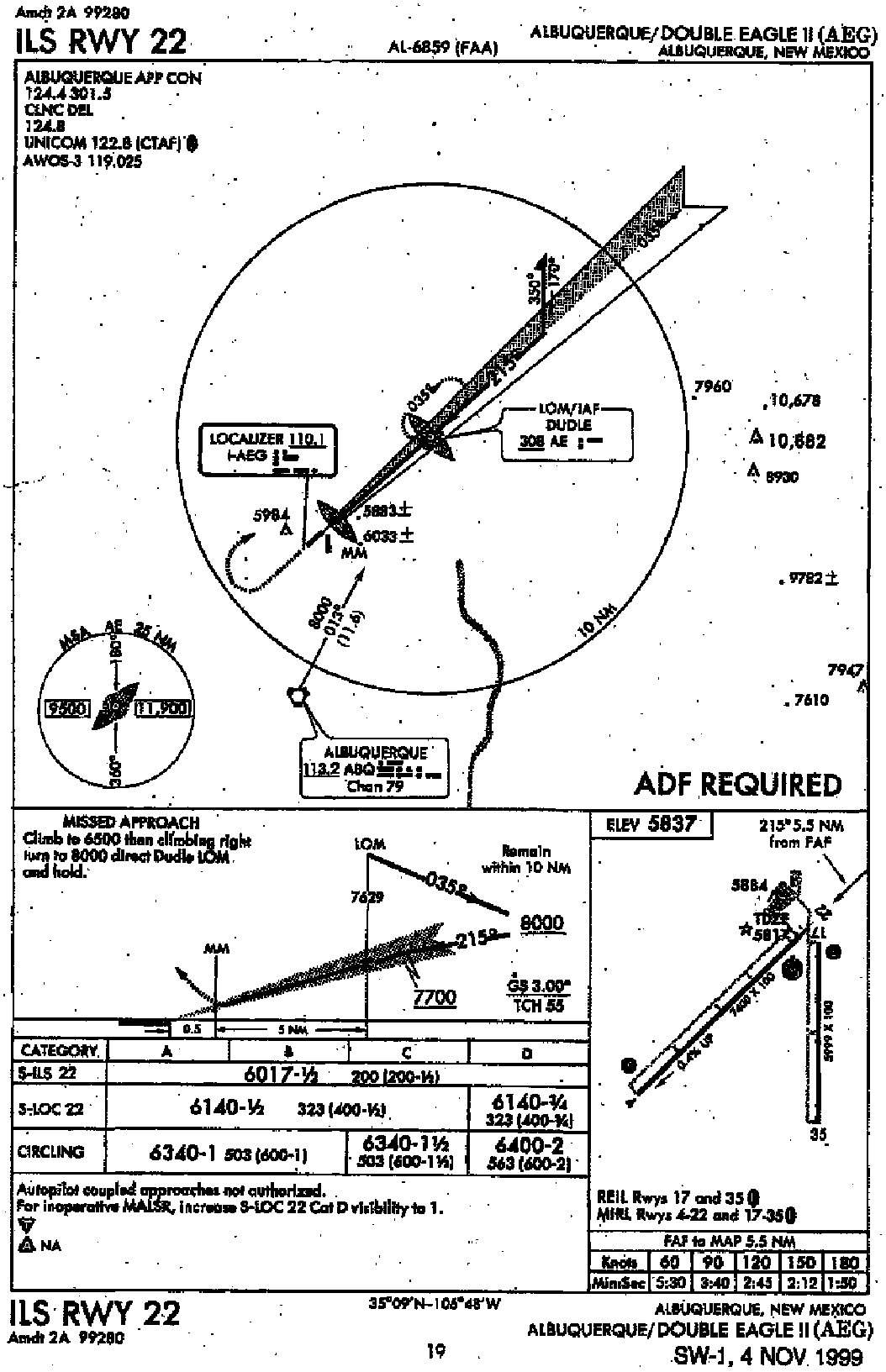
INSTRUMENT APPROACH PROCEDURE
GPS TO RUNWAY 22

FIGURE: 3.9



Double Eagle II Airport Master Plan

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INSTRUMENT APPROACH PROCEDURE
ILS TO RUNWAY 22

FIGURE: 3.10

J:\DOUBLE EAGLE II\EXHIBITS\FIG 3.10.DWG 07/17/02 11:48

3.7.5.1 Runway Utilization

Runway utilization depends on several factors that include: wind conditions, runway length, aircraft type, and parking location. Runway utilization means the percentage of time the runway end is used for arrivals and departures. Analysis of the data indicates that Double Eagle II Airport is predominantly in a north-northeast flow condition. Runway utilization by runway end is summarized in Table 3.4.

TABLE 3.4
AIRPORT RUNWAY UTILIZATION*

Runway	Day (7:00 am - 10:00 pm)	Night (10:00 pm - 7:00 am)
4	20%	20%
22	40%	60%
17	25%	14%
35	15%	6%
Total	100%	100%

* For all operation types.

Source: Double Eagle II Airport Management, 2001.
FBO Personnel, 2001.
State of New Mexico, 2001.

3.7.5.2 Taxiway Utilization

Taxiway utilization and flows were determined by consultation with FBOs located at Double Eagle II Airport. Aircraft are taxied via the most convenient route to the departure runway end.

3.8 METEOROLOGICAL CONDITIONS

Local meteorological conditions such as precipitation, temperature, wind direction, and velocity have a direct influence on the operation of an airport and the development of an airport runway system. This meteorological section examines historical precipitation and temperature data. Wind data is presented in Section 6.0, Airside Demand Capacity/Facility Requirements.

3.8.1 Precipitation

National Weather Service records state that the highest rainfall activity occurs during the month of July. Average rainfall for July is 1.3 inches.

3.8.2 Temperature

According to the National Weather Service, the mean maximum temperature during the hottest month, July, is 92.8° F.