

SITE SELECTION



Chapter Five

SITE SELECTION

INTRODUCTION

The Benson Municipal Airport Site Selection and Master Plan Study Phase I Report identified four candidate sites that were considered to have the greatest potential for the siting of the proposed Benson Municipal Airport. The purpose of the Phase II Report is to evaluate in greater detail these final candidate sites on the basis of their relative benefit to the community of Benson and the surrounding service area, as well as their compatibility with the existing natural and human environment.

In addition to the four sites recommended for further evaluation as a result of the Phase I analysis, two additional sites were subsequently identified by the Planning Advisory Committee and discussed for potential consideration. Based on a preliminary evaluation of these additional sites, a recommendation was made to include them, along with the four previously identified sites, in the more detailed site evaluation. The first site is located just east of the

original site E and will be referred to as Site E1. The second site identified is located near the original Site F and will be referred to as Site F1.

To conduct a more detailed investigation of the six final candidate sites, preferred layouts were prepared for each, fitting the proposed airport facilities to the terrain and other physical characteristics of each individual site. The following paragraphs describe the characteristics of each site that were considered significant in the final siting analysis. **Exhibit 5A** depicts the six final candidate sites with their approximate runway orientation.

SITE CHARACTERISTICS

SITE A

Site A is located approximately 11 road miles west and north of downtown Benson, three and one-half miles north of the Mescal Road Interchange on Interstate 10 (I-10). It

is located within Sections 28, 29, 32 and 33 of Township 16 South, Range 19 East. This site is the farthest of the six sites from the Benson City limits and is located the farthest distance from I-10 (**Exhibit 5B**).

As with all six sites, Site A is located outside of the Benson city limits. Site A, as well as the proposed new access road, is located entirely on State land.

Access

Mescal Interchange would provide convenient ingress to and egress from I-10 to Mescal Road. Mescal Road, which would provide access to the site, is paved for roughly 2.5 miles and is an improved dirt road for the remainder. An access road, approximately one-half mile in length, would need to be constructed to connect Mescal Road to the proposed airport facilities.

For this site, nearly all ground transportation to and from the airport would necessitate a crossing of the Southern Pacific Railroad. Without grade separation of the access road and the railroad, delays could be experienced due to the passing and stopping of trains. While a grade separated crossing may prove to be feasible in the long term planning phase of airport development, it would probably not be feasible or warranted in the initial or intermediate planning periods.

Earthwork

The development of Site A would require approximately 1.2 million cubic yards of cut and 0.18 million cubic yards of fill, for a net excess of 1.02 million cubic yards of waste dirt.

Runway Gradient and Orientation

The proposed airport layout for Site A is depicted on **Exhibit 5B**. The change in elevation from one runway end to the other is approximately 100 feet, from 4060 on the west end to 3960 on the east end. The overall gradient is 1.4 percent, sloping to the northeast.

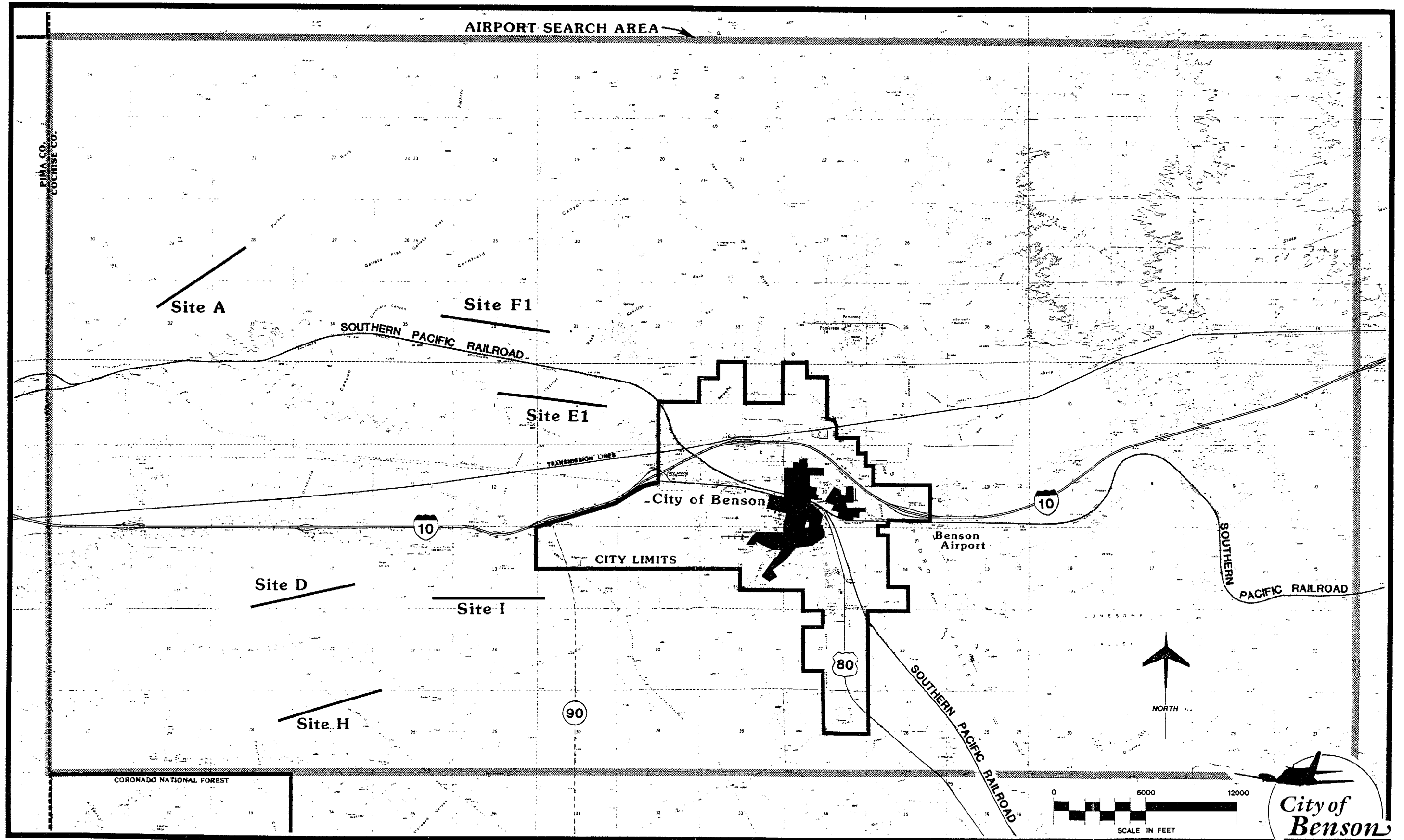
The runway orientation for Site A would be 06-24, which exceeds the required 95 percent crosswind coverage for both utility and transport category runways. It provides wind coverage of 98.1 percent for winds 12 miles per hour and under, and 99.7 percent for winds 15 miles per hour and under.

Utilities

The closest existing municipal water delivery line is nearly 10 miles to the east and south of Site A. Due to the expense involved in extending a line this distance, a water well would be constructed to provide water to this site. A septic system would be installed rather than extending existing sanitary sewer lines, due to the minimal demand that would be generated at the proposed airport and the distance from existing facilities. Electric power lines would have to be extended a distance of roughly one and one-half miles to serve the proposed airport at this site. Telephone lines would have to be extended one mile to the site.

Other Considerations

Site A is located approximately three-quarters of a mile north of an existing Arizona Electric Power Cooperative 230 kilovolt (kV) transmission line which parallels the railroad



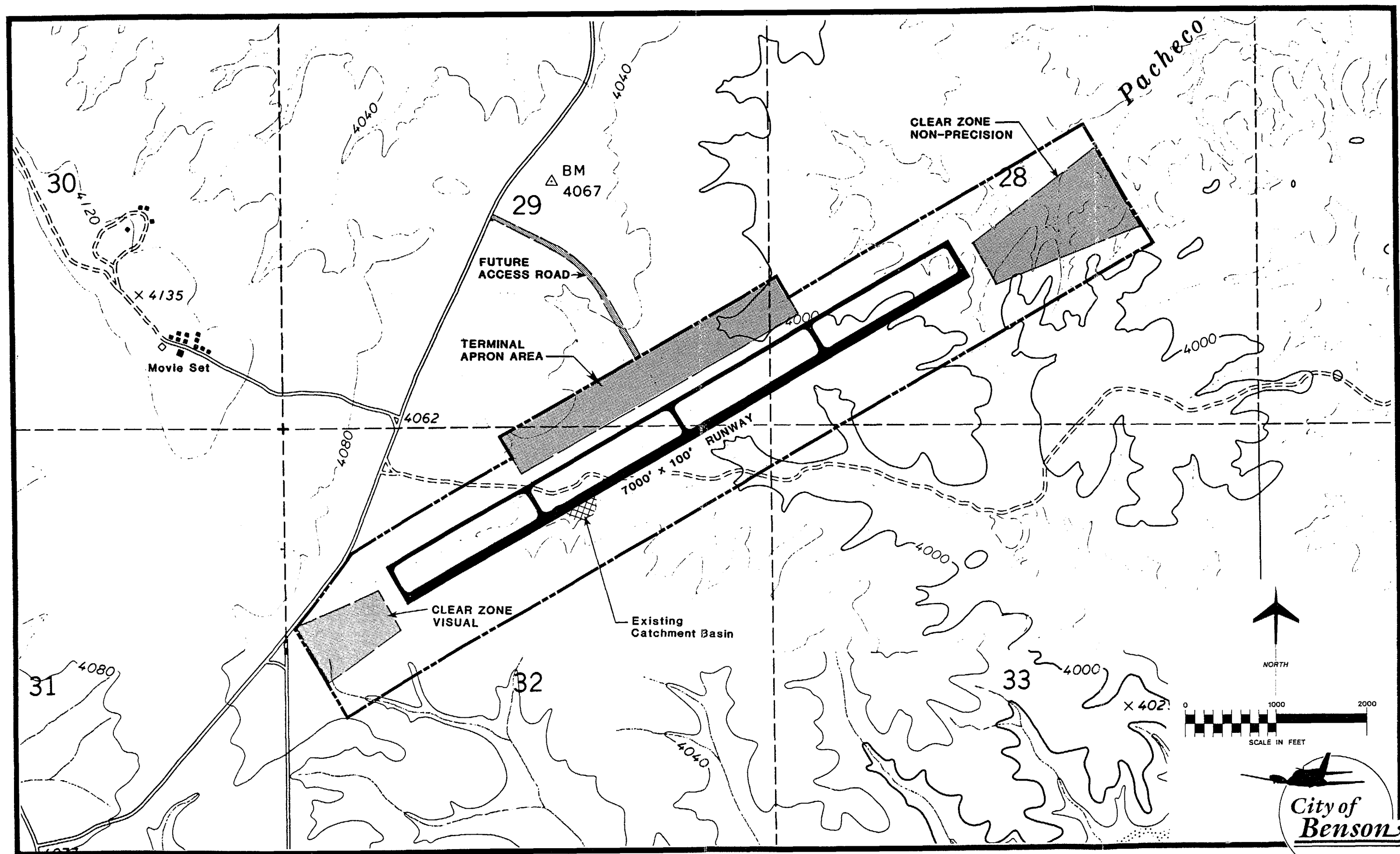


Exhibit 5B
AIRPORT LAYOUT SITE A

in this area. The wooden "H" frame structures which support this line extend 60 to 70 feet above the ground surface.

Construction of the airport at this location would serve as a barrier to an existing, two-mile long, unimproved dirt road originating at Mescal Road within Section 32. This unimproved dirt road provides access to water catchment basins located in Sections 27, 32 and 33, and is most likely used for grazing operations. Construction of the airport at this site would directly eliminate one existing catchment basin.

Noise sensitive land uses in the immediate vicinity include a western movie location on leased State land, situated just over one-half mile to the northwest of the proposed airport property. This set is the site for the filming of western movies and television shows, as well as commercials and other smaller productions. According to the owners, three or four productions per year are completed at this facility and, during productions, filming is conducted six to seven days a week.

The closest residential units are located approximately one-half mile to the south of the proposed site and the railroad, along both sides of Mescal Road.

SITE D

Site D is located approximately six road miles to the west of downtown Benson, three quarters of a mile south of the Skyline Interchange on I-10. It is located within Sections 14, 15, 16, 21 and 22 of Township 17 South, Range 19 East (Exhibit 5C).

As with all six sites, Site D is located outside of the Benson city limits. Site D would require the acquisition or lease of both State and privately owned lands.

Access

Since Site D is located within one mile of I-10, it is one of the best sites with regard to access. Skyline Interchange would provide ingress to and egress from I-10. A new airport access road three-quarters of a mile in length would need to be built to connect this site with I-10.

Earthwork

The development of Site D would require approximately 0.45 million cubic yards of cut and 1.53 million cubic yards of fill, thereby requiring 1.08 million cubic yards of dirt be transferred to the site from some other source.

Runway Gradient and Orientation

The proposed airport layout for Site D is depicted on **Exhibit 5C**. The change in elevation from one runway end to the other is approximately 40 feet, from 4340 on the west end to 4300 on the east end. The overall gradient is 0.6 percent, sloping to the east.

The runway orientation for Site D would be 08-26, which exceeds the required 95 percent wind coverage for either utility or transport category runways. It provides wind coverage of 98.1 percent for winds 12 miles per hour and under, and 99.6 percent for winds 15 miles per hour and under.

Utilities

The closest existing municipal water delivery line is nearly five miles to the east of Site D. Due to the expense involved in extending a line this distance, a water well would be

constructed to provide water to this site. A septic tank system would be installed rather than extending existing sanitary sewer lines due to the minimal demand that would be generated at the proposed airport and the distance from existing facilities. Electric power lines would have to be extended a distance of roughly one-quarter of a mile to serve the proposed airport at this site. Telephone lines would have to be extended one-half mile to the site.

Other Considerations

Site D is part of a working cattle ranch operation, Skyline Ranch. The siting of the airport at this location would serve as a barrier to an existing improved dirt access road and an unimproved dirt access road which serve the ranching operation and associated residence located immediately south of the site in Section 22. The siting of the airport at Site D would likely require the relocation of at least one of these roads as well as an existing electric power distribution line that also serves this residence.

The next closest residential units are located one-quarter of a mile to the west of the proposed site in Section 17. In addition to existing residences, future residential and mixed use development has been planned for portions of Sections 19, 20, 29 and 30, to the west of the proposed site.

Cornfield Canyon Wash transects Site D, and must be considered in the airport design. According to the Federal Emergency Management Agency, Flood Insurance Rate Maps, no 100-year floodplain has been designated within this site.

SITE H

Site H is located south of Site D and is approximately eight miles to the west and south of I-10, at the Skyline Interchange. The site is located within Sections 22, 23, 26, 27, and 28 of Township 17 South, Range 19 East (**Exhibit 5D**).

As with all six sites, Site H is located outside of the Benson city limits. Site H, as well as the proposed access road, would require the acquisition or lease of privately owned land.

Access

As with Site H, Skyline Interchange would provide ingress to and egress from I-10. However, in the case of Site H, a longer access road would be necessitated, roughly two miles in length.

Earthwork

The development of Site H would require approximately 0.54 million cubic yards of cut and 2.98 million cubic yards of fill, thereby requiring 2.44 million cubic yards of dirt be imported from some other source.

Runway Gradient and Orientation

The proposed airport layout for Site H is depicted on **Exhibit 5D**. The change in elevation from one runway end to the other is approximately 70 feet, from 4550 on the west end to 4480 on the east end. The overall gradient is 1.0 percent, sloping to the east.

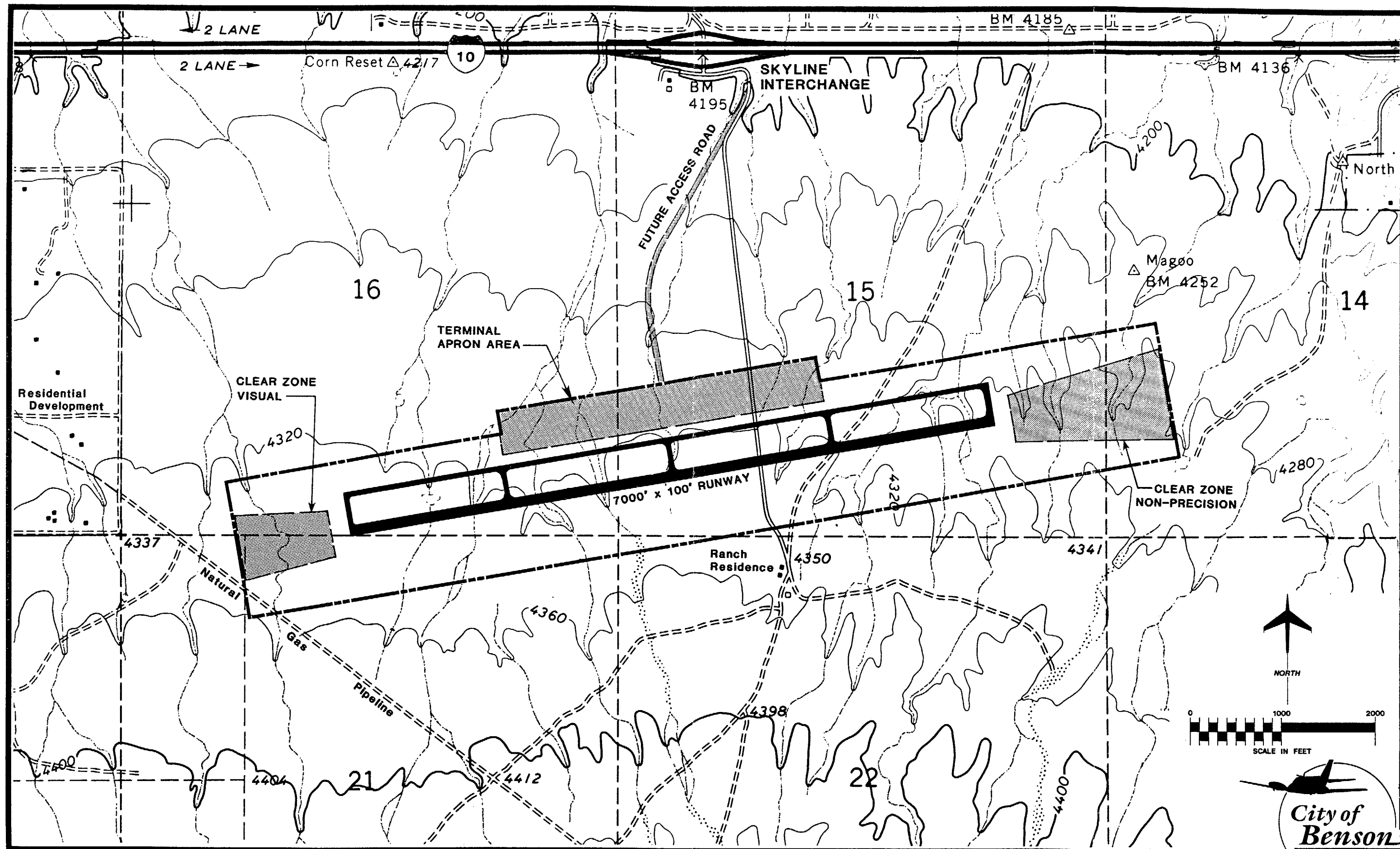
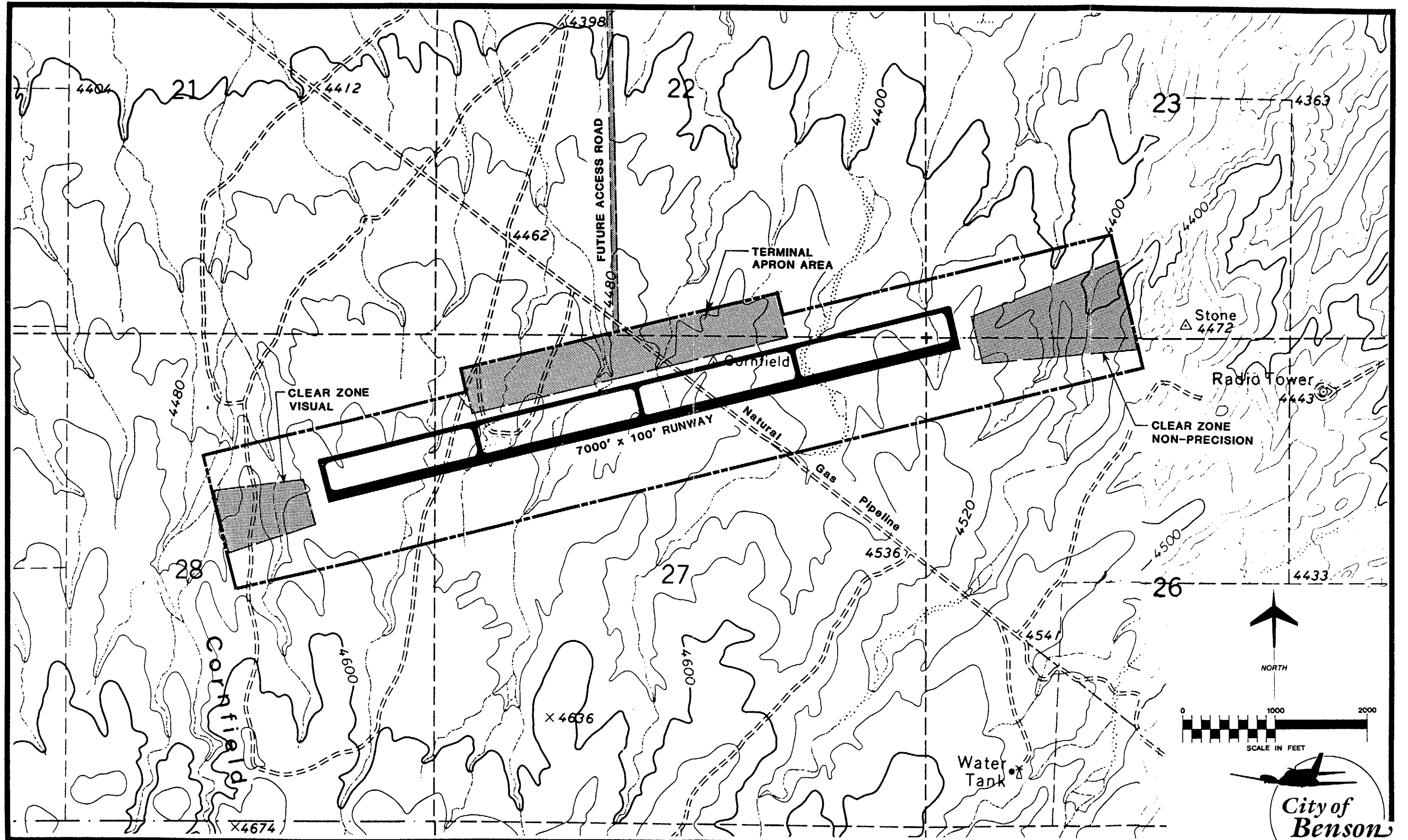


Exhibit 5C
AIRPORT LAYOUT SITE D



City of
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The runway orientation for Site H would be 08-26, which exceeds the required 95 percent wind coverage for either utility or transport category runways. It provides wind coverage of 98.1 percent for winds 12 miles per hour and under, and 99.6 percent for winds 15 miles per hour and under.

Utilities

The closest existing municipal water delivery line is nearly six miles to the north and east of Site H. Due to the expense involved in extending a line this distance, a water well would be constructed to provide water to this site. A septic tank system would be installed rather than extending existing sanitary sewer lines due to the minimal demand that would be generated at the proposed airport and the distance from existing facilities. Electric power lines would have to be extended a distance of nearly one mile to serve the proposed airport at this site. Telephone lines would have to be extended 2.5 miles to the site.

Other Considerations

As with Site D, the land included within Site H is part of a working cattle ranch operation, Skyline Ranch. The siting of the airport at this location would serve as a barrier to three unimproved access roads used in the existing area ranching operation. These roads are oriented generally north to south and are located within Sections 27 and 28. The siting of the airport at Site D would likely require the relocation of at least a portion of these access roads, and would eliminate a portion of the existing fencing and stock ponds used in the ranching operation.

The closest residential unit would be the Skyline Ranch residence located nearly one mile to the north of the proposed airport site, within Section 22. Additional residences are located roughly one mile to the northwest of

the site, within Section 17. In addition to existing residences, future residential and mixed use development has been planned for portions of Sections 19, 20, 29 and 30, one-half mile to the west of the proposed site.

In order to obtain an acceptable runway orientation and to minimize required earthwork, the preferred airport layout for Site H would be as shown on **Exhibit 5D**. This location, however, would be over an existing high pressure gas line owned by El Paso Natural Gas Company. The gas line transects the site on a diagonal from northwest to southeast. According to a company representative, construction of a runway over the gas line would not be permitted. Adjustment of the location of the layout to avoid this line easement would result in additional siting concerns, such as Cornfield Canyon Wash to the west and rougher topography to the east.

Cornfield Canyon Wash transects Site H, on the west end and must be considered in the airport design. According to the Federal Emergency Management Agency, Flood Insurance Rate Maps, however, no 100-year floodplain has been designated within this site.

SITE I

Site I is located approximately four road miles west and south of downtown Benson, roughly three-quarters of a mile south of I-10. It is located just west of State Route 90 and is the closest site to Kartchner Caverns. The site is situated within Sections 13 and 14 of Township 17 South, Range 19 East; and Section 18 of Township 17 South, Range 20 East (**Exhibit 5E**).

As with all six sites, Site I is located outside of the Benson city limits. Site I, as well as the proposed access road, would require the acquisition or lease of privately owned land.

Access

Ingress to and egress from I-10 for an airport at Site I would not be as convenient as Sites A, D, H, and E1. Traffic would have to depart from I-10 at an exit located roughly 1.25 miles to the west, and utilize the I-10 frontage road. Traffic exiting the airport site could use the frontage road to obtain ingress to I-10 from State Route 90, at the Whetstone Interchange (at a distance of roughly one-half mile).

Due to its location near I-10, however, Site I is one of the best sites regarding the construction of new access road. A new access road of one-half mile in length would need to be built to connect the airport site to the I-10 frontage road.

Earthwork

The development of Site I would require approximately 2.47 million cubic yards of cut and 0.77 million cubic yards of fill, for a net excess of 1.7 million cubic yards of dirt.

Runway Gradient and Orientation

The proposed airport layout for Site I is depicted on **Exhibit 5E**. The change in elevation from one runway end to the other is approximately 80 feet, from 4240 on the west end to 4160 on the east end. The overall gradient is 1.1 percent, sloping to the east.

The runway orientation for Site I would be 09-27, which exceeds the required 95 percent wind coverage for either utility or transport category runways. It provides wind coverage of approximately 97.7 percent for winds 12 miles per hour and under, and 99.4 percent for winds 15 miles per hour and under.

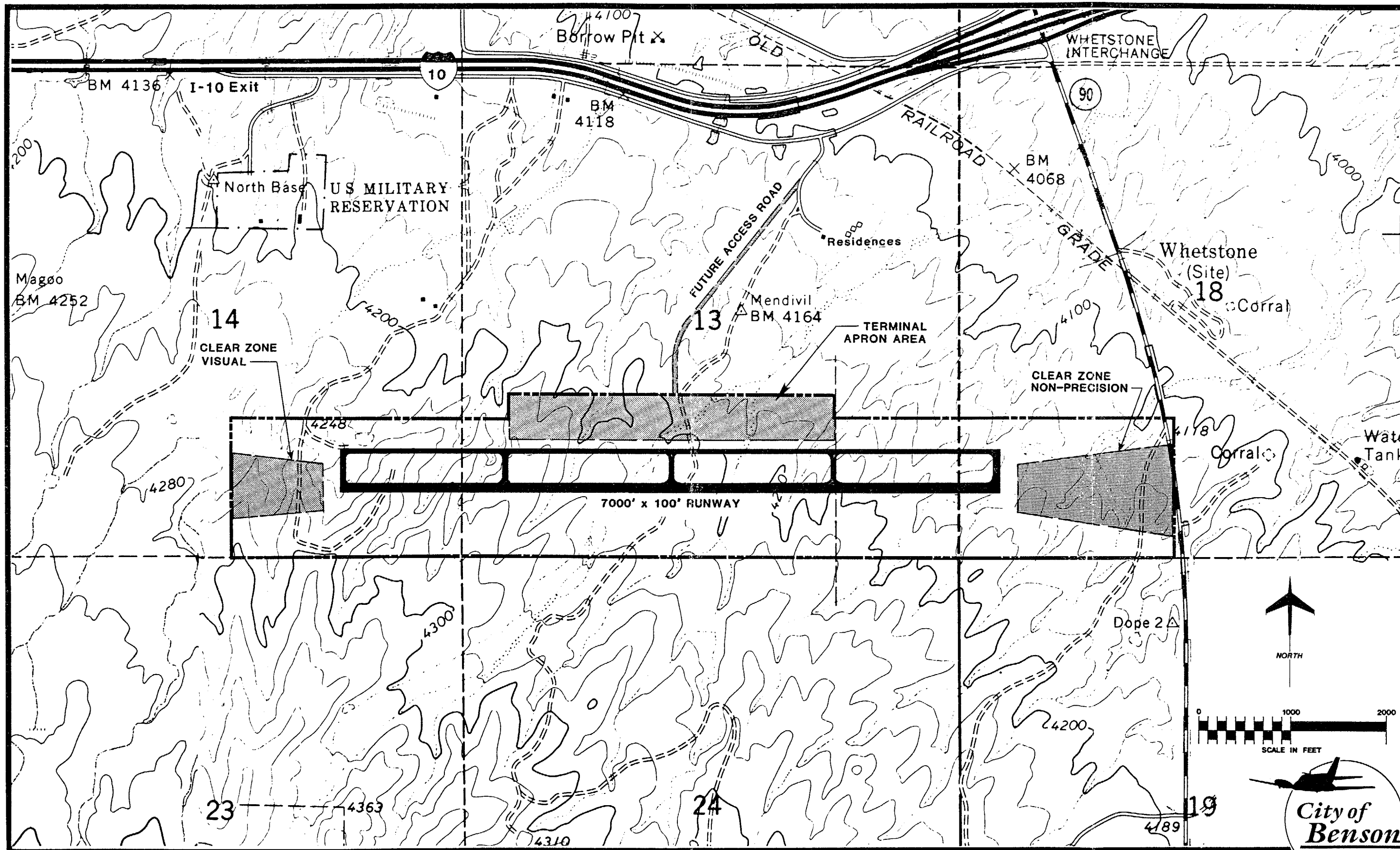
Utilities

Site I is located within an area designated as an Economic Development Demonstration District. The intent of this district is to provide incentives, inducements or benefits to encourage business to locate or expand within it, and to recommend improvements in the infrastructure within the district and a funding source for such improvements. The selection of Site I could possible result in some level of assistance for utility extensions.

The closest existing municipal water delivery line is roughly three miles to the north and east of Site I. It is anticipated that it would not be feasible in the short term to extend the water line this distance, and therefore, a well would be proposed. A septic system would be installed rather than extending existing sanitary sewer lines due to the minimal demand that would be generated at the proposed airport and the distance from existing facilities. Electric power lines would have to be extended a distance of one-quarter mile to serve a proposed airport at this site. Telephone lines would have to be extended one-half mile to the site.

Other Considerations

Site I includes land utilized in a horse breeding operation. The construction of an airport at this site would serve as a barrier to two unimproved dirt access roads located in Sections 13 and 14. The residential units associated with the horse breeding operation are located within Section 13, approximately one-half mile north of the proposed site. Several other residential units are located within a distance of one-half mile of the proposed airport site.



SITE E1

Site E1 is located approximately four and one-half miles to the west and north of downtown Benson, one and one-half miles north of I-10 at its intersection with State Route 90. As with Site I, Site E1 is one of the closest to the Benson city limits. It is located within Section 1 of Township 16 South, Range 19 East; and Sections 5 and 6 of Township 16 South, Range 20 East (Exhibit 5F).

As with all six sites, Site E1 is located outside of the Benson city limits. A majority of the land needed for the development of Site E1 would be State land, however, privately owned land would likely be required at the eastern end of the proposed airport and for the necessary access to the proposed site.

Access

The Whetstone Interchange would provide ingress to and egress from I-10 for an airport built on Site E1. A new access road, a length of roughly one and one-quarter miles, would need to be constructed to provide access to the site from I-10.

Earthwork

The development of Site E1 would require approximately 0.14 million cubic yards of cut and 1.16 million cubic yards of fill, thereby requiring 1.02 million cubic yards of dirt be imported from some other source.

Runway Gradient and Orientation

The proposed airport layout for Site E1 is depicted on Exhibit 5F. The change in elevation from one runway end to the other is approximately 60 feet, from 3900 on the west end to 3840 on the east end. The overall gradient is 0.9 percent, sloping to the east.

The runway orientation for Site E1 would be 10-28, which exceeds the required 95 percent wind coverage for either utility or transport category runways. It provides wind coverage of approximately 97.3 percent for winds 12 miles per hour and under, and 99.2 percent for winds 15 miles per hour and under.

Utilities

The closest existing municipal water delivery line is roughly three miles to the south and east of Site E1. It is anticipated that it would not be feasible in the short term to extend the water line, and therefore, a well would be proposed. A septic system would be installed rather than extending existing sanitary sewer lines due to the minimal demand that would be generated at the proposed airport and the distance from existing facilities. Electric power lines would have to be extended a distance of one and one-quarter miles to serve a proposed airport at this site. Telephone lines would have to be extended 1.25 miles to the site.

Other Considerations

At its closest point, Site E1 is located approximately 2,000 feet north of an existing Western Area Power Administration 115 kV power line which transects the area in a west to east direction. The wooden "H" frame structures which support this line extend 52 to 56 feet above the ground surface.

As with each of the other sites under consideration, existing unimproved dirt roads would be blocked by the construction of the airport at this site.

The closest existing residential units are located nearly one mile to the east or south of the proposed airport site.

The site is located in close proximity to the Southern Pacific Railroad, but unlike Site A,

would not require the crossing of the railroad by the majority of the users.

Cadillac Wash transects Site E1, and must be considered in the airport design. According to the Federal Emergency Management Agency, Flood Insurance Rate Maps, however, no 100-year floodplain has been designated within this site.

SITE F1

Site F1 is located approximately 4.5 road miles north and west of downtown Benson. It is three miles west of Ocotillo Road and 2.5 miles north of Interstate 10 (I-10). It is located within Sections 35 and 36 of Township 16 South, Range 19 East, and Section 31 of Township 16 South, Range 20 East (**Exhibit 5G**).

As with the other six candidate sites, Site F1 is located outside of the Benson city limits. Site F1 would require the acquisition or lease of State land for the construction of the airport facilities, and would likely require the acquisition of privately owned land for access to the site from Ocotillo Road or from I-10.

Access

Access to Site F1 could be provided from two different transportation facilities. City of Benson officials requested the consideration of access from the east, off Ocotillo Road, in order to provide an alternative that did not dissect land to the south of Site F1, near Site E1, and to potentially direct area visitors that would arrive by airplane to downtown Benson. In addition to access from Ocotillo Road, a review was also conducted of the advantages and disadvantages of providing access from I-10 to the south of the site.

With access provided from Ocotillo Road, a three mile long access road would need to be

constructed through rough terrain. Ocotillo Road is fully paved between I-10 and the proposed access road for Site F1, providing full weather access.

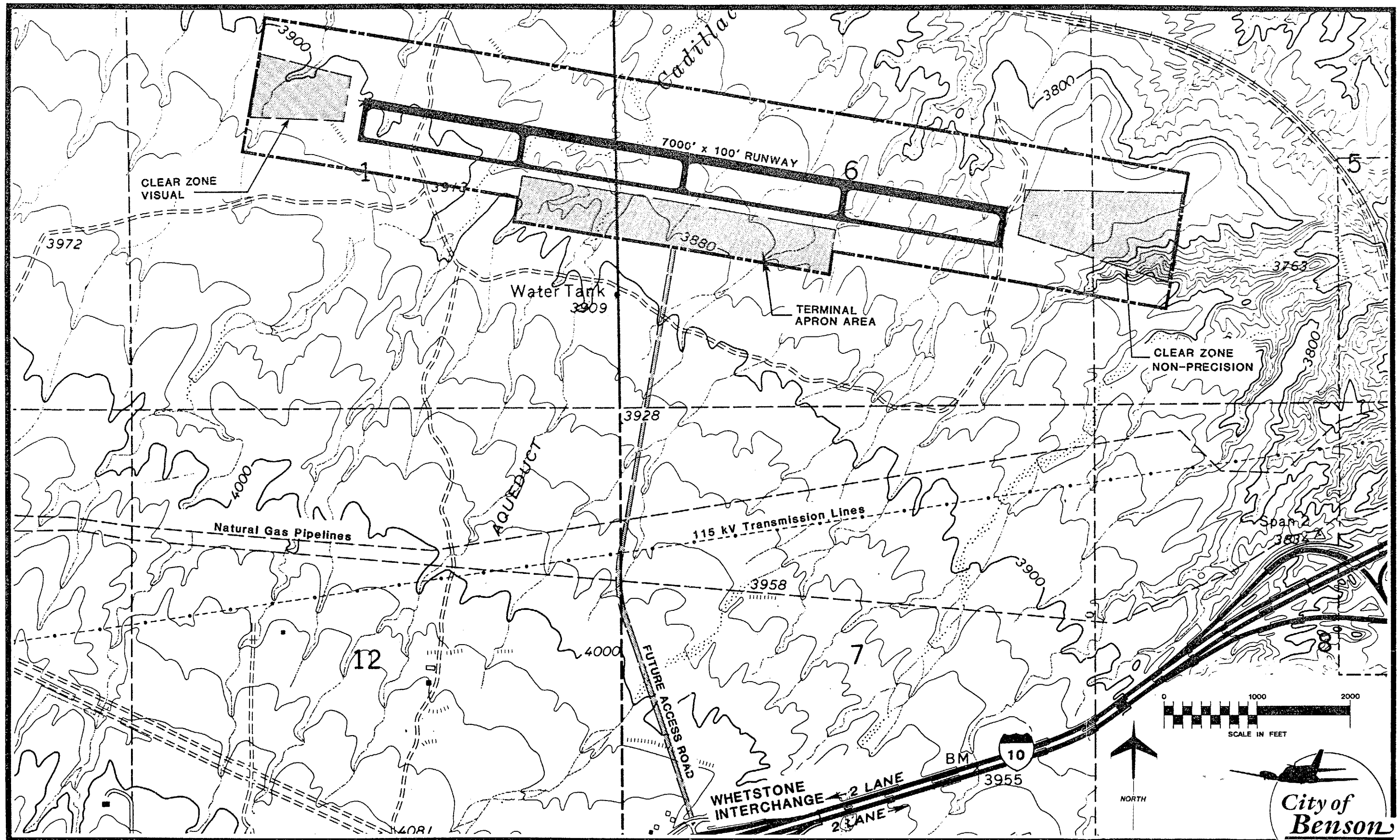
While the site is located north of the Southern Pacific Railroad, and would, therefore, require the crossing of the tracks by vehicles transporting to and from the airport, an existing signalized crossing gate, located at Ocotillo Road (within the City limits of Benson), would safely facilitate this crossing. Local input has suggested that delays caused by waiting for trains to pass through the area are not as long in duration within the Benson urban area as they are in the Mescal Road area, due to engine switching activities that are conducted west of town. The access alternative from Ocotillo Road is depicted on **Exhibit 5H**.

With access provided from I-10, 2.5 miles of new access road would be required for the siting of an airport on Site F1.

As with the Ocotillo access alternative, access from I-10 would necessitate a crossing of the Southern Pacific Railroad by all traffic commuting to and from the airport. Since no formal crossing of the railroad currently exists in this area, an easement for a railroad crossing would be required and a signalized crossing gate (costs are generally in excess of \$100,000) would need to be purchased. As with Site A, without grade separation of the access road and the railroad, delays could be experienced due to the passing and stopping of trains.

Earthwork

The development of Site F1 would require approximately 1.83 million cubic yards of cut and 0.06 million cubic yards of fill, for a net excess of 1.76 million cubic yards of waste dirt.



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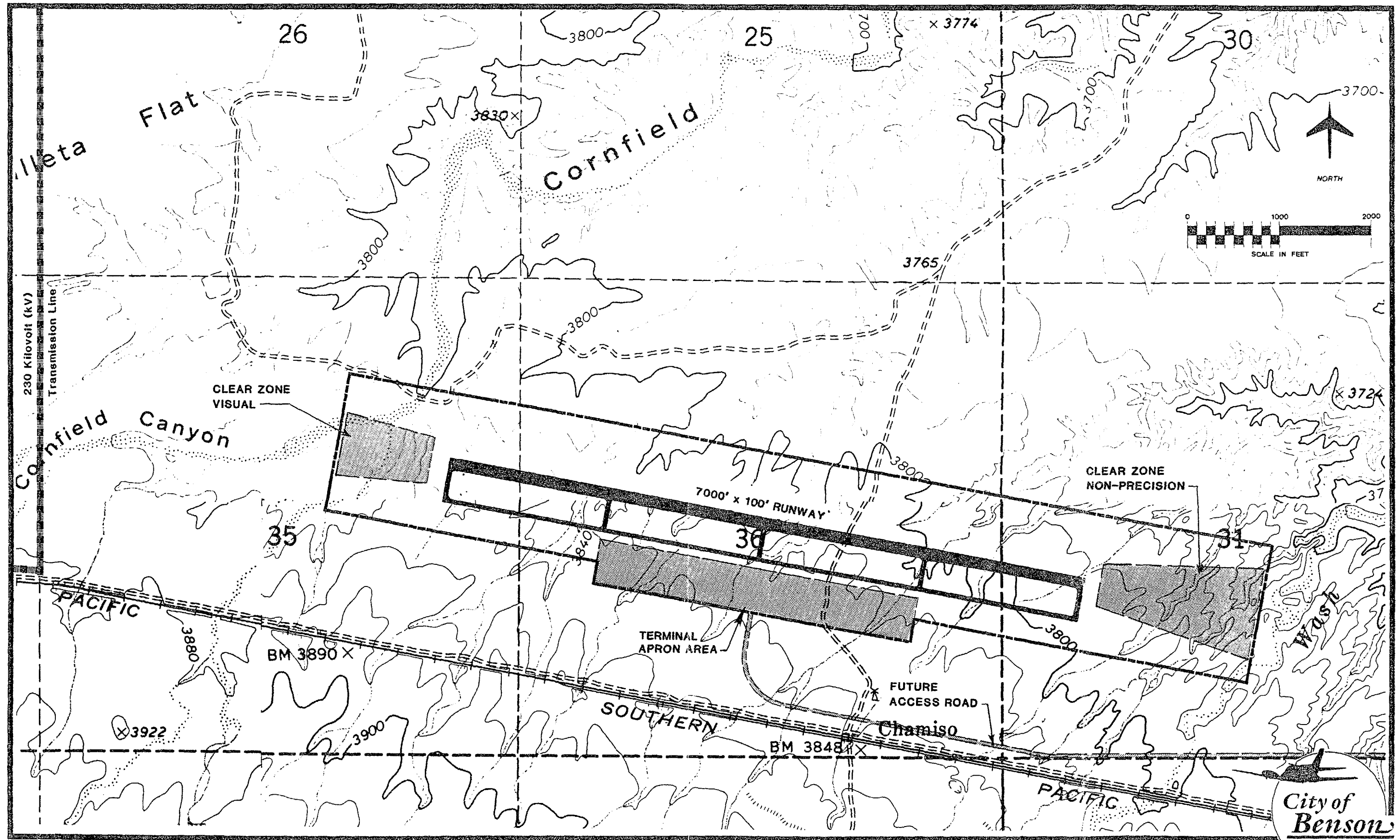
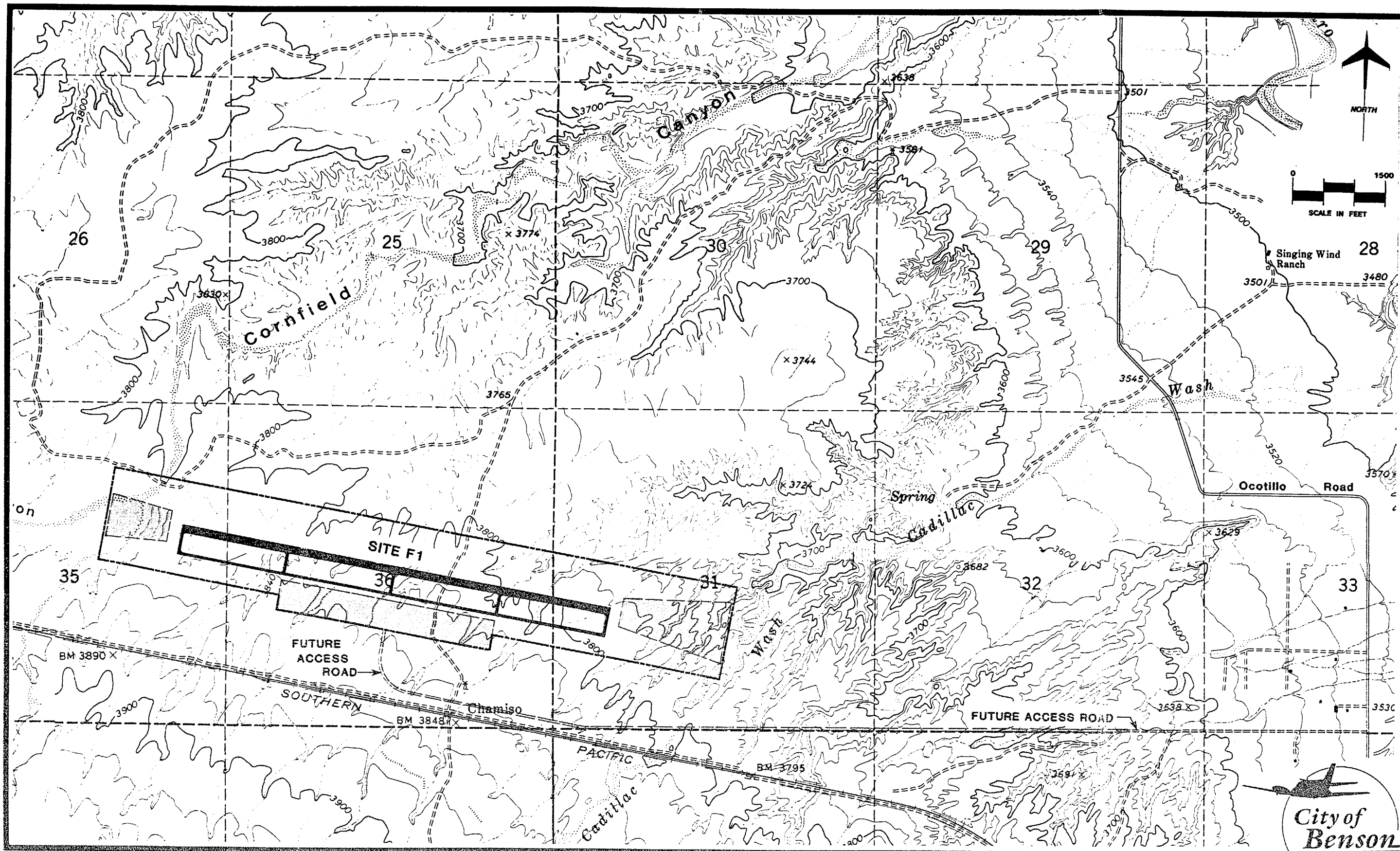


Exhibit 5G
AIRPORT LAYOUT SITE F1



City of
Benson

Runway Gradient and Orientation

The proposed airport layout for Site F1 is depicted on **Exhibit 5G**. The change in elevation from one runway end to the other is approximately 50 feet, from 3830 on the west end to 3780 on the east end. The overall gradient is 0.7 percent, sloping to the east, northeast.

The runway orientation for Site F1 would be 10-28, which exceeds the required 95 percent crosswind coverage for both utility and transport category runways. It provides wind coverage of 97.3 percent for winds 12 miles per hour and under, and 99.2 percent for winds 15 miles per hour and under.

Utilities

The closest existing municipal water delivery line is roughly 4.5 miles to the east and south of Site F1. Due to the expense involved in extending a line this distance, a water well would be constructed to provide water to this site. A septic system would be installed rather than extending existing sanitary sewer lines, due to the minimal demand that would be generated at the proposed airport and the distance from existing facilities. Electric power lines would have to be extended a distance of roughly three miles to serve the proposed airport at this site. Telephone lines would also have to be extended roughly three miles to the site.

Other Considerations

Site F1 is located approximately three-quarters of a mile east and one and one-quarter miles south of an existing Arizona Electric Power Cooperative 230 kilovolt (kV) transmission line. The most critical portion of this transmission line is that portion west of the runway, oriented north to south, that would be perpendicular to the proposed runway (see **Exhibit 5G**). The wooden "H"

frame structures which support this line extend 72 feet above the ground surface. Since the terrain rises approximately 40 in this area above the elevation of the west end of the proposed runway, the relative height of these poles above the runway would be 112 feet. While this height would not penetrate the Federal Aviation Regulations (FAR) Part 77 Airspace, the proximity of this line would be considered a disadvantage.

Construction of the airport at this location would serve as a barrier to an existing, unimproved dirt road, extending nearly five miles originating at I-10, extending north and then east to Ocotillo Road. This unimproved dirt road provides access for grazing operations in the area.

Site F1 is located in close proximity to the Southern Pacific Railroad and would be considered an attraction to many types of businesses that would likely locate at or adjacent to the airport. The closest noise sensitive land uses are located along Ocotillo Road, several miles to the east of the potential runway location.

Cornfield Canyon Wash to the west of the proposed runway, is designated as Zone A on the Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps. Zone A is defined as areas of 100-year flood; base flood elevations and flood hazard factors not determined. As with all of the candidate sites under consideration for the siting of the new Benson Municipal Airport, Site F1 would also be affected by non-FEMA designated natural drainageways and sheetflow.

NOISE

Another factor in the evaluation of the various sites is the potential aircraft noise impacts on area residents. Aircraft noise emissions are often the most noticeable environmental effect an airport will have on the surrounding community. To determine

potential impacts related to noise, exposure patterns must be analyzed for the quantity and type of aircraft operations anticipated at the proposed Benson Municipal Airport.

NOISE CONTOUR DEVELOPMENT

The basic methodology employed to define aircraft noise levels involves the extensive use of a mathematical model for aircraft noise prediction. The day-night average sound level (Ldn) is used in this study to assess aircraft noise. Ldn is the metric currently preferred by the Federal Aviation Administration (FAA) as a proper measure of cumulative noise exposure. Most federally-funded airport noise studies use Ldn as the primary metric.

Ldn is defined as the average A-weighted sound level as measured in decibels, during a 24-hour period; a 10 decibel (db) penalty is applied to noise events occurring at night (10:00 p.m. to 7:00 a.m.). Ldn is a summation metric which allows objective analysis and can describe noise exposure comprehensively over a larger area.

Since noise spreads at a consistent rate in all directions from a source, equal Ldn noise levels are indicated by a series of contour lines superimposed on a map of the airport and its environs. These levels are calculated for designated points on the ground from the weighted summation of the effects of all aircraft operations. It should be emphasized, however, that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not on the other; Ldn calculations do not precisely define noise impacts. Nevertheless, Ldn contours can be used to: 1) highlight existing or potential incompatibilities between an airport and its surrounding land uses; 2) assess relative exposure levels; 3) assist in preparation of land use plans for the airport and its environs; and 4) provide guidance in the development of land use control devices,

such as zoning ordinances, subdivision regulations and building codes.

The use of a computerized noise prediction model is necessitated in noise studies because the development of noise contours directly from field studies would require months of measurement at numerous noise measurement sites--a very impractical, extremely expensive, and often times, a less accurate method of evaluation.

The Integrated Noise Model, Version 3.9, was used for Ldn contour calculations in this analysis. The Integrated Noise Model (INM) was developed by the Transportation Systems Center of the U.S. Department of Transportation at Cambridge, Massachusetts, and has been specified by the FAA as one of two models acceptable for federally funded noise analyses. It is a computer model which, during an average 24-hour period at an airport, accounts for each aircraft flight along flight tracks defined as straight-line or curved segments. These flight tracks are coupled with separate tables in the model's data base which relate to the noise, slant range, distances, and engine thrust for each distinct aircraft type selected.

Briefly this is how the model works: on regular grid locations at ground level around the airport, the shortest slant range to each flight track is selected, and the associated noise exposure level is computed for the specific aircraft type and engine thrust level used at that point along the flight track. Additional corrections are applied for excess air-to-ground acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and speed variations. The individual aircraft noise exposures are then summed for each grid location. A night time penalty (equivalent to increasing night operations by a factor of ten) for increased annoyance is added to flights occurring between 10:00 p.m. and 7:00 a.m. The cumulative values of noise exposure at each grid location may then be used to interpolate equal exposure contours

for preselected Ldn values (Ldn 65, Ldn 70, etc.)

For the Benson Municipal Airport analysis, the computer input files were prepared for long term planning period of 2010. The computer output generated is in the form of a paper copy printout of coordinates of each point of equal Ldn value. These coordinates were plotted and connected by contour lines. The results are shown on the appropriate exhibits discussed later in this section.

NOISE ANALYSIS INTERPRETATION

Noise of all types influences human behavior and activities in many different ways. In particular, the impact of aircraft noise may affect people both physically and psychologically. Detailed quantification of these impacts is extremely difficult due to different individual reactions to noise. The Environmental Protection Agency (EPA) has sponsored and conducted a number of studies with the goal of determining the impact of aircraft noise on the human environment.

With regard to structural damage to buildings, airborne sound normally encountered does not usually carry sufficient energy to cause damage to most structures. The major exceptions to this are sonic booms produced by supersonic aircraft, low frequency sound produced by rocket engines and some construction equipment, none of which are produced by general aviation activity.

The psychological impact of aircraft noise presents a more severe problem than does direct physical impact. Certain kinds of noise or sound directly affect feelings and attitudes, in many cases primarily by virtue of the information being conveyed. These indirect influences are of prime importance when considering problems of noise annoyance. The sound of approaching aircraft, because of the possibility of a crash, may elicit fear and this fear appears to be a factor motivating

complaints of annoyance in neighborhoods near airports.

Studies done in the mid-1960's have shown that in communities impacted by aircraft noise, interruption of rest, relaxation and sleep were the underlying causes of most registered complaints. No two individuals perceive noise in exactly the same fashion. Such factors as morale, anxiety and introversion play a role in determining one's reaction to noise. Thus, the major detrimental impact of community noise exposure is primarily psychological rather than physical.

While the severity of aircraft noise remains a subjective issue, certain objective standards have been formulated with regard to acceptable noise exposure standards for various types of land uses. Although some sensitivity to noise may occur at lower levels, the FAA and other agencies recognize 65 Ldn as the noise exposure level where impacts become significant.

FUTURE NOISE CONDITIONS

To determine the potential noise impacts anticipated as a result of the proposed Benson Municipal Airport, a noise analysis was completed based on forecast operations for the year 2010. This year was selected because this is the year within the planning period that is expected to experience the greatest level of aircraft activity, or the worst case scenario.

In general, land uses become very sensitive to noise at 65 Ldn or greater. Noise exposure levels were developed for the proposed Benson Municipal Airport to express 60, 65, 70, and 75 Ldn. For the year 2010, the area included within the 60+ Ldn noise contour area totals 396 acres. One hundred and ninety of these acres are contained within the 65+ Ldn contour, and 57 of these acres are included within the 75+ Ldn noise contour.

Table 5A presents the approximate acreage of each of the general noise exposure areas.

TABLE 5A
2010 Noise Contour Acreage
Benson Municipal Airport

<u>Ldn</u>	<u>Acres</u>
60+	396
65+	190
70+	110
75+	57

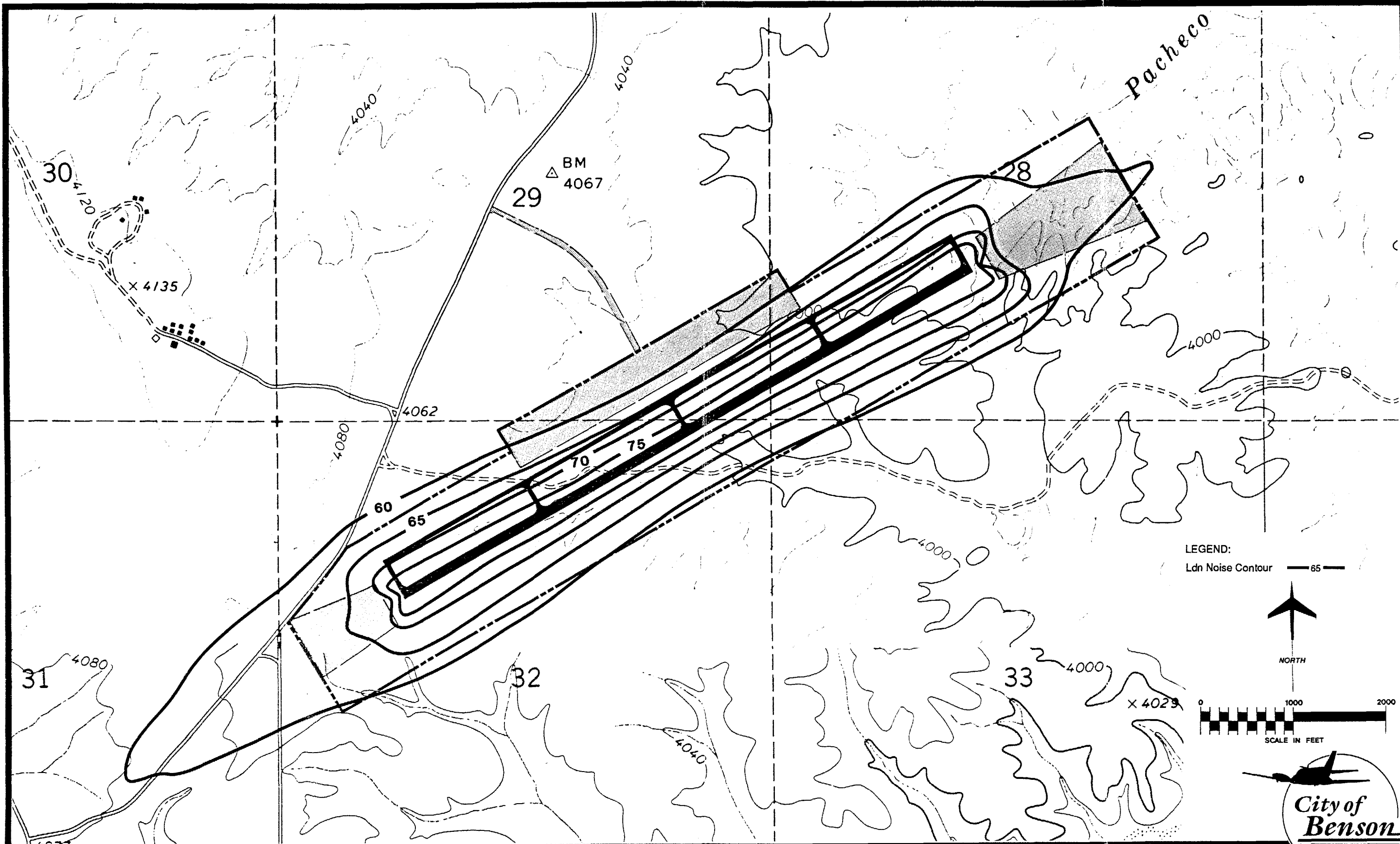
The noise contours generated for the year 2010, overlaid on each of the potential airport layouts, were then used to identify existing or planned land uses that would be considered incompatible with the proposed airport and its forecasted level of use. Land uses generally considered most sensitive to noise include residential, schools, hospitals, and nursing homes. Exhibits 5I through 5N depict the noise contours on each of the proposed sites. No residences or other structures are located within the 60+ Ldn noise exposure area for any of the proposed sites. Several single-family residential units, however, are located in close proximity to the 60+ Ldn noise contour that would be generated for an airport on Site D. These residences are located to the west of the airport and to the south of the airport at midfield. The Empirita Ranch, planned development, would not fall within the noise contours developed for any of the proposed sites. The portions of this proposed development closest to the potential Benson Municipal Airport sites would cover all of Sections 17 and 20, the west 1/2 of the W 1/2 of Section 21, the west 1/2 of Section 29, and the NW 1/4 of the

NW1/4 of Section 29, Township 17 south, Range 19 east.

DEVELOPMENT COST ESTIMATES

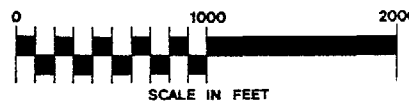
From the airport layouts developed for each site, preliminary cost estimates were prepared to cover such items as, earth work, utility extensions, road access construction or improvements, facility construction, and the relocation of any existing structures or facilities in conflict with the proposed use. These costs are order of magnitude estimates for comparison purposes only, are based on available information, and include those facilities planned for the ultimate airport development. Land costs were provided by the City of Benson, and electric and telephone extension costs were provided by local utility companies. Table 5B depicts these estimates and the total cost for each of the six sites.

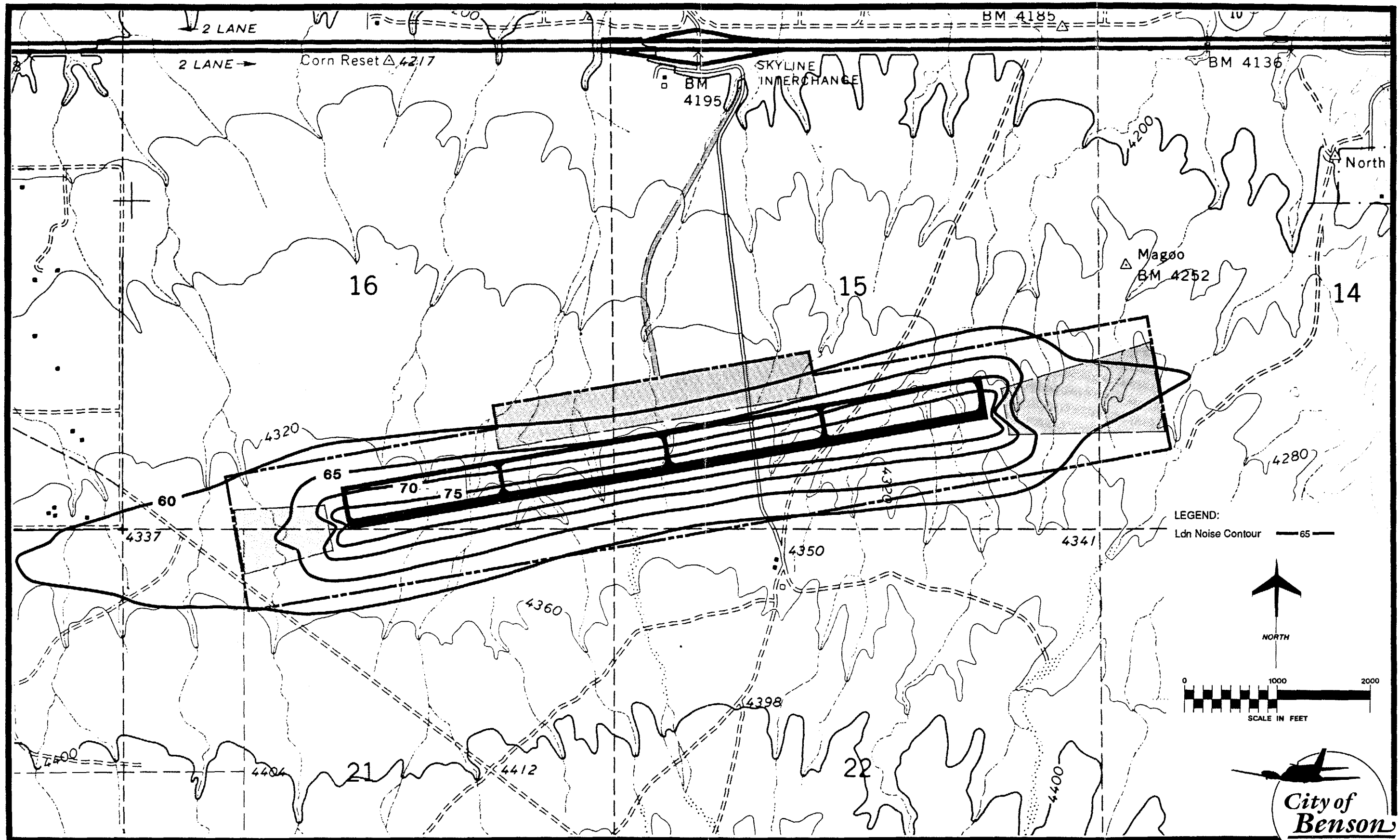
Estimates indicate that Site A and Site E1 would be the least expensive to develop for the proposed Benson Municipal Airport, at a cost of seven to eight million dollars. The primary reason for the difference between the estimates for the two sites is that land in the vicinity of Site E1 is believed to be more costly. Site F1, which also takes advantage of somewhat lower land costs, was estimated at just over nine million, the third least expensive. Site D, which would require a greater investment for site preparation/-grading, is the fourth least expensive site to develop at just under ten million. Site I, at about 11.5 million, also has greater site preparation costs, as well as higher land costs. For Site H, the most expensive site, higher costs are attributed primarily to earthwork quantities and the need to build a significantly longer access road.

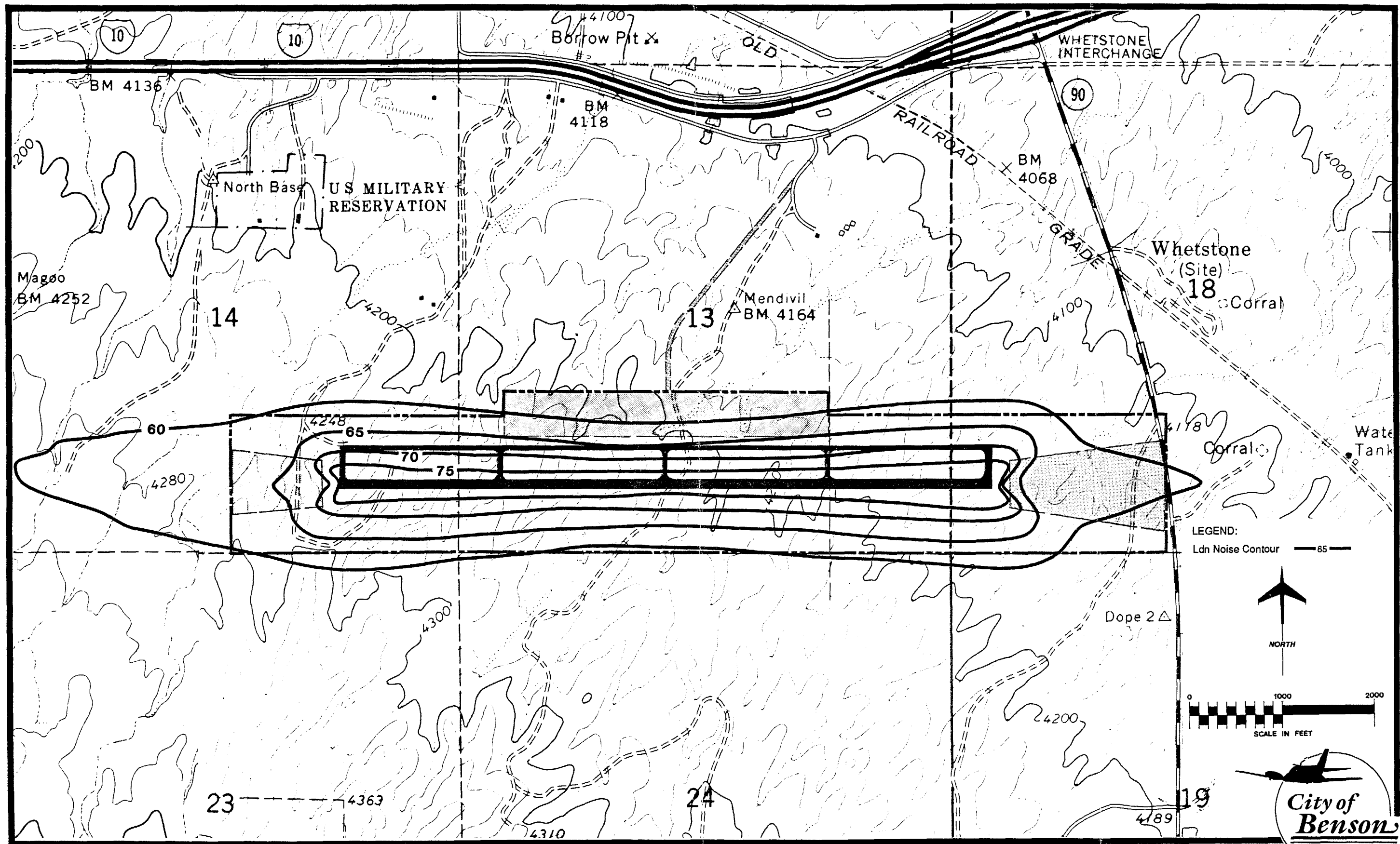


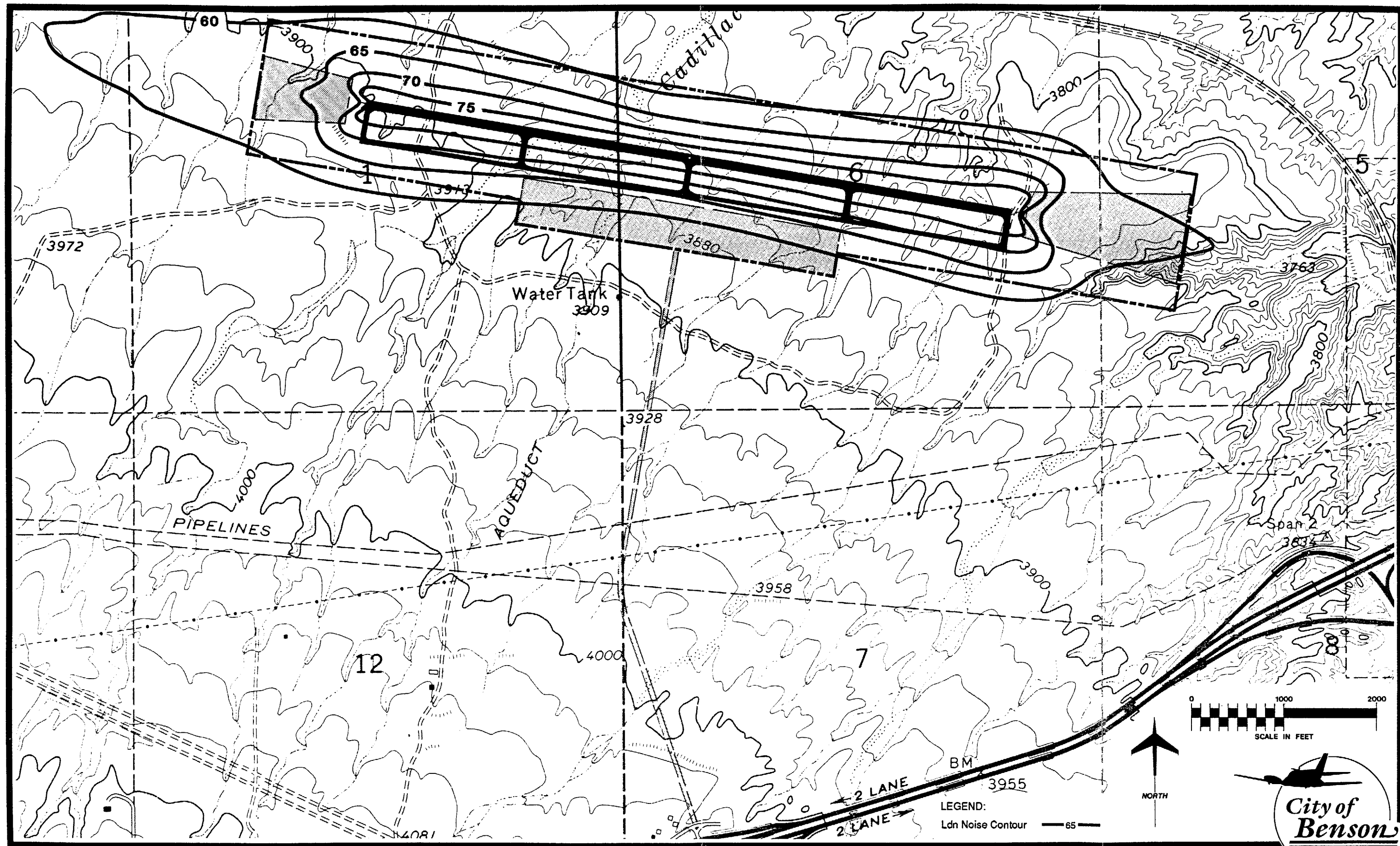
LEGEND:

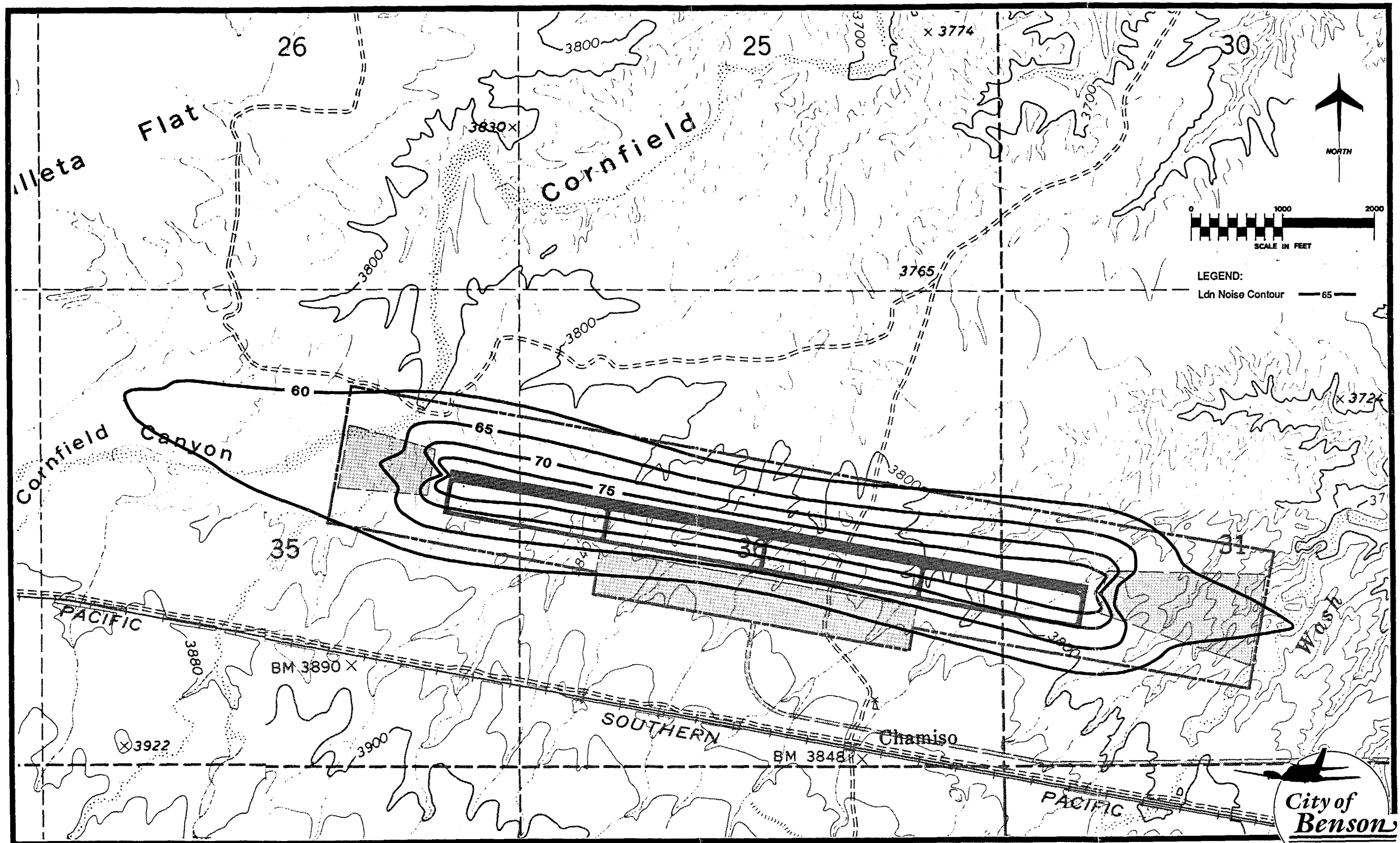
Ldn Noise Contour — 85 —











SUMMARY AND RECOMMENDATIONS

A preliminary recommendation was prepared by the consultant regarding the sites that were considered preferential to the siting of a new Benson Municipal Airport. In consideration of its location, environmental conditions and estimated development costs, Site E1 appears to have the best overall potential for the development of the Benson Municipal Airport. The estimated development costs associated with this site are only 11 percent higher than the least expensive site, Site A. This increase in cost reflects the fact that Site E1 would be more difficult to construct than Site A. Site E1 would allow for excellent ingress to and egress from I-10. Its proximity to the Southern Pacific Railroad would be a positive attraction to many types of potential land uses that could be developed around the airport. However, unlike Site A, the location of Site E1 would not necessitate railroad crossings by ground transportation entering or leaving the airport. The Site's proximity to the Benson city limits would be a potential benefit to the development of related businesses or industries.

While Site E1 appears to be the best site overall, Sites A, F1 and I also present a number of potential benefits to the siting of the proposed Benson Municipal Airport. Site A is the least expensive site to develop, however, it is the farthest of the sites from the interstate, would require the use of an unpaved portion of Mescal Road (at least during the initial period of development), and would necessitate a railroad crossing.

Site F1, which is relatively close to the city limits, is situated within rough topography, complicating the construction of the access road and future adjacent development. As with Site E1, Site F1 is located adjacent to the railroad and would therefore be a positive attraction to many types of potential land uses that could be developed around the airport. With access from Ocotillo Road, Site F1 would more likely direct potential visitors into downtown Benson.

Site I is located the closest to downtown Benson and the closest to Kartchner Caverns, however, it is the second most expensive site to develop and is roughly 47 percent more expensive than Site E1. Due to the rough topography of this site and the large quantity of earthwork required to develop in this area, the development of any viable industrial or commercial park associated with the proposed airport would not appear to be feasible.

Sites D and H were considered the least desirable for the development of the airport, due primarily to the existing and potential land uses in the immediate vicinity, the presence of the El Paso Natural Gas pipeline, rough terrain, and high site preparation costs, particularly for Site H.

Following a presentation by the consultant summarizing the results of the airport site evaluation, the City Council voted to select Site F1 for further evaluation and preparation of the Airport Master Plan.

TABLE 5B
Development Cost Estimates*
Benson Municipal Airport

	<u>Site A</u>	<u>Site D</u>	<u>Site H</u>	<u>Site I</u>	<u>Site E1</u>	<u>Site F1</u>
Property Acquisition	\$480,000	\$600,000	\$480,000	\$1,000,000	\$720,000	\$420,000
Site Preparation/Grading	3,365,200	5,037,200	9,473,300	7,348,600	3,613,000	4,656,300
Runway, Taxiway, Apron Paving	1,829,300	1,829,300	1,829,300	1,829,300	1,829,300	1,829,300
Buildings & Hangars	1,045,000	1,045,000	1,045,000	1,045,000	1,045,000	1,045,000
Utilities	376,300	217,000	381,100	209,200	351,300	554,000
Access Road	110,000	165,000	440,000	110,000	275,000	825,000
Total	\$7,025,800	\$9,893,500	\$13,648,700	\$11,542,100	\$7,833,600	\$9,329,600

* Preliminary costs based on ultimate development
