APPENDIX A

ENVIRONMENTAL BASELINE STUDY

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APPENDIX A

NEW PAHRUMP VALLEY AIRPORT
ENVIRONMENTAL BASELINE STUDY

This environmental baseline study has been prepared for the new Pahrump Valley Airport to determine what environmental issues might be expected if the new Airport is developed as proposed and to determine what differences exist between the alternative Airport site layouts evaluated for the new Airport. The discussion also explores what information is available to support a more detailed analysis of potential impacts and suggests what additional field surveys may be required in order to acquire the additional information necessary to complete an impacts assessment. A bibliography of sources is provided at the end.

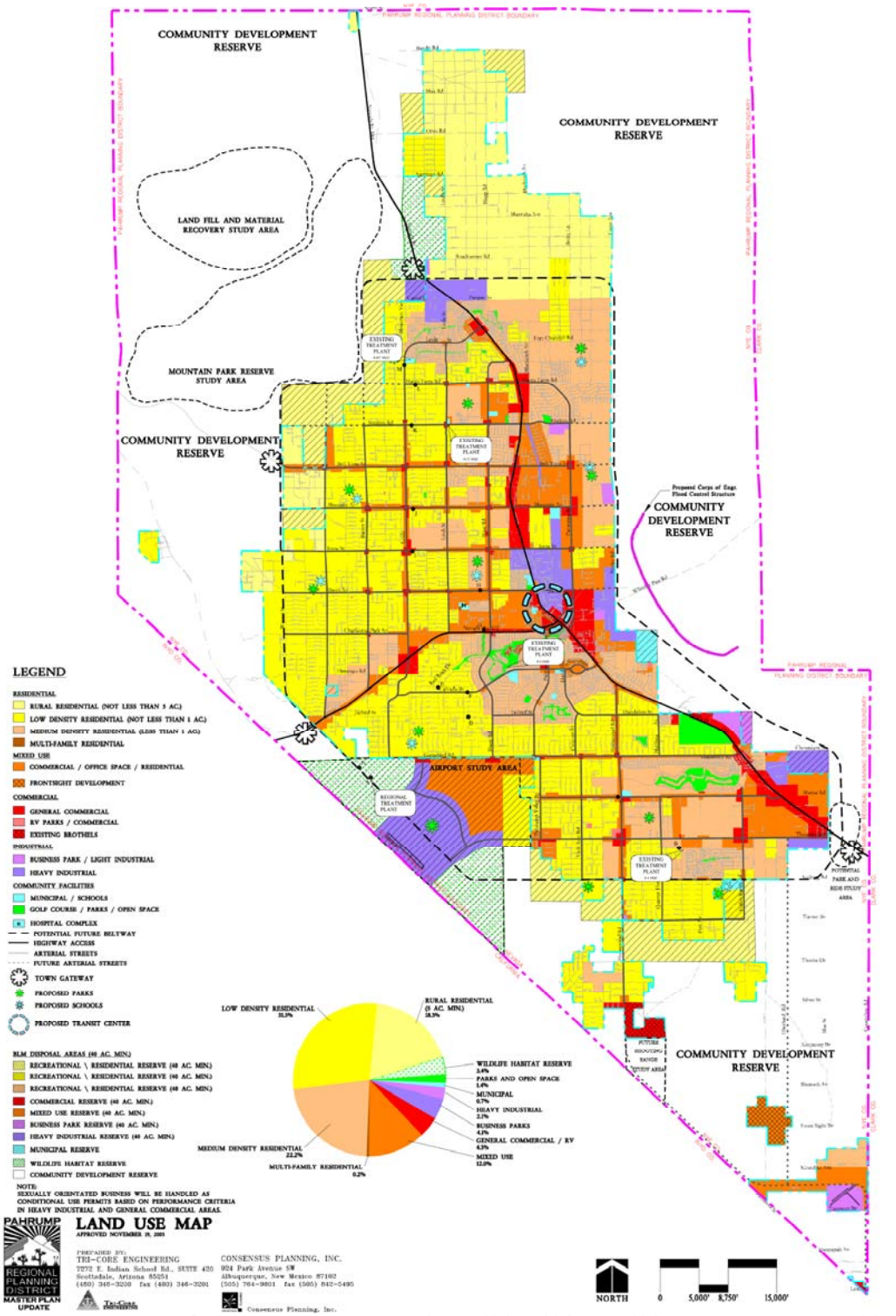
The land upon which construction of the Airport is proposed is currently owned by the federal government and managed by the Bureau of Land Management (BLM). As a consequence, the topics evaluated herein represent a combination of topics identified in Federal Aviation Administration (FAA) and BLM guidance regarding environmental assessments under the National Environmental Policy Act (NEPA). The FAA is expected to review these findings from the perspective of satisfying NEPA requirements for its investment in the future Airport and ongoing support of its operations. The BLM is expected to look at these findings from the standpoint of meeting its mandates to protect public lands and to satisfy NEPA requirements for the disposal of such lands.

The Airport Master Plan report identified two potential alternative airport layouts for the new Pahrump Valley Airport. These two airport layouts, identified as Site "B" and Site "C" are located in close proximity to one another on the same BLM parcel south of Gamebird Road and west of Pahrump Valley Boulevard. The Airport site is identified on the Pahrump Regional Planning District Master Plan Update, Land Use Map (see Figure A-1). The Airport vicinity and Site B and C airport layouts are shown in more detail on Figure A-2.

A.1 OVERVIEW / SETTING

The Town of Pahrump is located in the Pahrump Valley in southeastern Nye County, Nevada, approximately 63 miles northwest of central Las Vegas and 40 miles east of Death Valley National Park. The Pahrump Valley is 26 miles long and 8 to 10 miles wide paralleling Nevada State Route 160 in this area and straddling the Nevada-California Stateline. The floor of the Pahrump Valley is the former bed of a large prehistoric lake which has been overlaid by alluvial wash from the surrounding mountain ranges. Bajadas, formed by the coalescence of several alluvial fans from adjacent canyons, dominate the gently sloping perimeter of the valley floor.

Elevations in the Town range from 2,500 to 2,750 feet above sea level in an area considered to be high desert. Along the north side of the Pahrump Valley the Spring Mountains rise to



PAHRUMP REGIONAL PLANNING DISTRICT MASTER PLAN UPDATE
NYE COUNTY, NEVADA

PAHRUMP VALLEY AIRPORT ENVIRONMENTAL ASSESSMENT

LAND USE MAP

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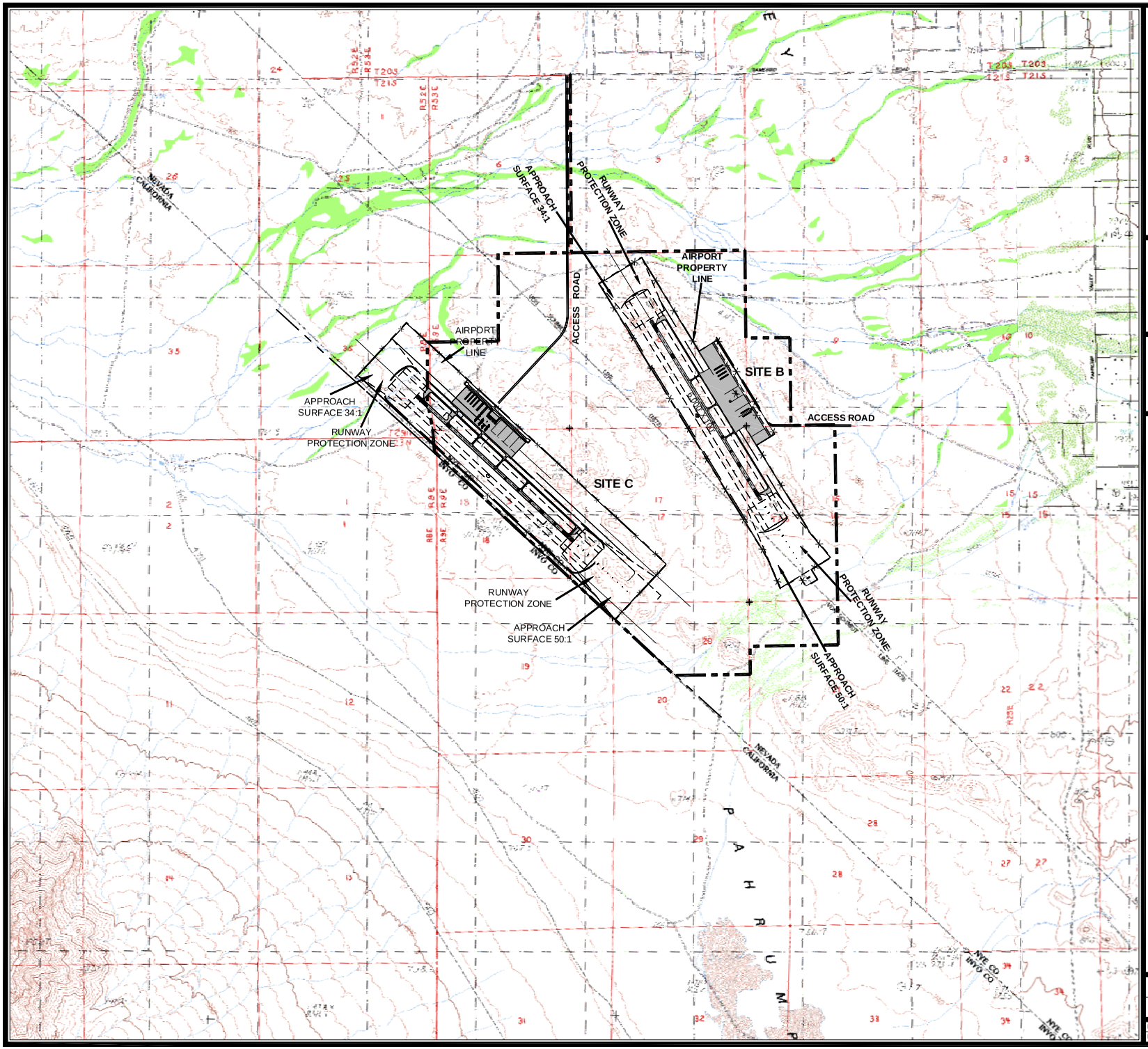
PAHRUMP VALLEY AIRPORT	FIGURE A-1
NYE COUNTY, NEVADA	
NAME:PVA-A1-Vicinity Land Use.dwg	NO: 4470-02
DATE: 04-20-06	PLOT SCALE: NOT TO SCALE



PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE
PAHRUMP
NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

AIRPORT VICINITY MAP

TRUE NORTH
MAGNETIC NORTH 13°06'E (2006)

0 1,000 2,000 3,000 4,000
GRAPHIC SCALE IN FEET

NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

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PAHRUMP VALLEY AIRPORT	FIGURE A-2
NYE COUNTY, NEVADA	
NAME: PVA-A2-Vicinity Map.dwg	NO: 4470-01
DATE: 04-20-06	PLOT SCALE: 1"= 4,000'

almost 12,000 feet, while mountains of the Nopah Range along the south side of the valley in California rise to over 5,000 feet. The Town sits at the base of Mount Charleston, which rises to 11,918 feet. The word “Pahrump” is a Southern Paiute Indian expression. The term “Pah” means water and “Rimpi” means stone or rock and the expression is interpreted to mean "water rock" or "place where big waters flow". The source of these waters is believed to be natural artesian springs which are common in the area.

Nye County is the largest county in the State of Nevada consisting of 18,294 square miles. The County Seat is in Tonopah, located 170 miles northwest of Pahrump. Approximately 70 percent of Nye County land is owned by the Federal Government and BLM manages approximately 188,924 acres within the County. Total federal acreage within Nye County exceeds 11.3 million acres. Federal facilities in Nye County include the Nevada Nuclear Test Site, the proposed Yucca Mountain nuclear waste repository (proposed to be used for disposing of spent nuclear fuel and high-level radioactive waste), Nellis Air Force Base Bombing and Gunnery Range, several national wild horse and burro management areas (HMAs), as well as wildlife refuges and recreational areas.

A.2 FINDINGS BY ENVIRONMENTAL TOPIC

This section provides a brief description of the focus of each topic’s investigation pointing out the differences in perspective between the FAA interest in developing the proposed Airport and the BLM interest in meeting its obligations for the disposal of federal lands. As noted earlier, the listing of topics is drawn from both FAA and BLM guidance pertaining to NEPA. Specific reference documents are:

- FAA Order 1050-1E, Environmental Impacts: Policies and Procedures, June 8, 2004
- FAA Order 5050.4B Airport Environmental Handbook, April, 2006
- BLM NEPA Handbook H-1790-1. October 25, 1988.
- U.S. Department of the Interior Publication *516 DM,* September 26, 1984.

A.2.1 Air Resources

A.2.1.1 Climate

Climate in the Pahrump Valley is characterized as a typical low-latitude desert climate with low precipitation and extreme variations in temperature. Based on information reported by the Western Regional Climate Center, average monthly maximum temperatures range from a low of 57.5 degrees Fahrenheit in January to a high of 101.2 degrees Fahrenheit in July; while average monthly minimum temperatures range from a low of 26.5 degrees Fahrenheit in December to 67.2 degrees in July. The annual average maximum temperature is 78.6 degrees Fahrenheit and the annual average minimum temperature is 45.6 degrees Fahrenheit.

Monthly precipitation in the Town of Pahrump has ranged from 0.08 inches in June to 0.89 inches in February, with an annual average of 4.82 inches. The above values are based on data collected over a recording period between October 1948 and September 2005. Based upon the Nye County Water Resources Plan, the average potential evaporation rate exceeds the average annual precipitation, with actual average evaporation ranging from 51 to 72 inches. On an annual basis, as much as 90 to 95 percent of the total annual precipitation is lost through evaporation and transpiration; only an estimated 5 to 10 percent recharges the groundwater regime. Droughts of more than 100 days occur.

Precipitation generally occurs during either a winter rainy season or during the late summer months. During the winter months, high pressure conditions predominate resulting in west-to-east trending winds and precipitation patterns. During the summer months, low pressure conditions predominate, resulting in southwest-to-northeast trending winds and precipitation patterns.

The primary wind direction in the project area is from the northwest as suggested by data originally developed for Site B in 1987 from the University of Nevada, Reno, Nevada Cooperative Extension Office. Subsequent data collected from two anemometer sites within the immediate vicinity of the Site B and C airport layouts during 2005 and 2006 indicated the primary wind directions are from the west northwest and south southeast.

A.2.1.2 Air Quality

The federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS) protective of public health and welfare. Currently, USEPA has established national standards for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (PM-10 and PM-2.5), and lead. These compounds are referred to as "criteria air pollutants."

Based on information in USEPA's "Green Book," the Town of Pahrump is located in an area that is either in attainment, or unclassified, for all criteria air pollutants. However, as a result of population growth during the 1990s large parcels of former farmland were cleared of vegetation, but not fully developed. Since the Pahrump Valley is subject to high winds, dust picked up from the disturbed areas often creates dust storms resulting in a significant fugitive dust (PM-10) problem and potential health hazard. According to the Nevada Division of Environmental Protection, Bureau of Air Quality Planning (BAQP) citizen complaints in the late 1990s led to the installation of an ambient air monitor in Pahrump. The BAQP has been monitoring the ambient air quality in Pahrump since January 2001. Today there are four monitors, the closest one to the proposed Airport site being at the Catholic Church on Gamebird Road, near Pahrump Valley Boulevard, where BAQP has been operating a Beta Attenuation Mass (BAM) monitor since February 2004. As a result of this monitoring, 27 exceedances of the National 24-hour ambient air standard were recorded during 2001, 2002

and 2003. Under the Federal Clean Air Act (CAA), these exceedances mean that Pahrump is no longer attaining the 24-hour standard. The Federal and Nevada ambient air quality standard for PM-10 is 150 $\mu g/m^3$ and the annual standard is 50 $\mu g/m^3$.

Under normal circumstances the USEPA would be asked to designate the area as nonattainment and the state and local governments would have three years to prepare and submit a State Implementation Plan (SIP). The SIP is intended to bring the area back into attainment with the federal standard within five years of designation. However, the PM-10 problem in Pahrump is being handled in a different manner. The Nevada BAQP, Nye County, the Pahrump Town Board, and USEPA are avoiding the typical nonattainment designation through a Memorandum of Understanding (MOU) among these parties. According to the BAQP, the MOU allows significantly more local control of the process and significantly less federal involvement. Under the MOU, Nye County has until 2009 to bring the area back into attainment. A key element of the MOU is preparation of a Clean Air Action Plan (CAAP). The CAAP is incorporated into the State of Nevada SIP and the State is legally required to carry out this plan just as it would in designated nonattainment areas. The USEPA is holding the nonattainment designation in abeyance until 2009 depending upon progress under the MOU. The USEPA would step in and apply the nonattainment designation if the MOU is failing to achieve its purpose.

The Nye County Commissioners adopted the "Pahrump Regional Planning District Dust Control Regulations" (Ordinance No. 289) on August 17, 2004. The Pahrump Regional Planning District's Dust Control Program became effective on January 1, 2005. The dust control regulations were subsequently strengthened through an amendment on March 1, 2005 (Ordinance No. 297). Currently, this program regulates construction activities that disturb soil in the Pahrump Valley. A dust control plan is required for most soil-disturbing projects where the total disturbance on one or contiguous parcels by the same operator or owner equals or exceeds 0.5 acres. Dust control methods are applied for land clearing and earthmoving activities, storage piles, unpaved roads and shoulders, disturbed surface areas and inactive construction sites, and at active construction site entrances where vehicles are likely to track out dirt and dust.

To support the determination of progress under the MOU, the Nevada BAQP prepared a PM-10 emissions inventory using data for 2001. Total particulate emissions in the Pahrump Valley were estimated to be 116,116 tons per year. Table A-1 provides a summary breakout of these emissions by major source. Mobile sources and vacant disturbed lands are the primary sources of PM-10 emissions and, as noted above, the focus of the regulatory effort. It should be noted that PM-10 emissions from aircraft were not included in the BAQP mobile source analysis, most likely because the level of such emissions from typical general aviation aircraft are quite low.

Table A-1

PM-10 EMISSIONS INVENTORY SUMMARY-
PAHRUMP REGIONAL PLANNING DISTRICT

Major Sources	Tons /Year	Percentage
Mobile Sources	48,221.67	41.53%
Vacant Disturbed Lands	67,559.47	58.18%
Construction Activities	179.59	0.15%
Municipal Solid Waste Burning	142.62	0.12%
Stationary Sources (permitted)	12.95	0.01%
TOTALS	116,116.30	100.00%

SOURCE: *Pahrump Regional Planning District, PM10 Emissions Inventory Area Sources* (DRAFT 02-03-04), Nevada Division of Environmental Protection, Bureau of Air Quality Planning.

The federal Clean Air Act (CAA), as amended in 1977, required Federal agencies and Metropolitan Planning Organizations (MPOs) not approve any transportation project, program, or plan which does not conform with the approved state or federal air quality implementation plans (today referred to as SIPs or FIPs, respectively). The purpose of the conformity requirement was to eliminate or reduce the severity and number of violations of the NAAQS and to achieve expeditious attainment of such standards. In 1990, additional amendments were made to the Clean Air Act (referred to as CAAA). The CAAA placed further emphasis on transportation with a requirement to perform a "conformity review" to assure that local transportation plans conform to the locally adopted air quality plan.

The analysis of conformity attempts to show the significance, or insignificance, of the proposed actions with respect to total emissions of a particular pollutant, or with respect to established de-minimus levels. The total direct and indirect emissions should not:

- Cause or contribute to any new violations of any standard in any area;
- Interfere with provisions in the SIP for maintenance of any standard;
- Increase the frequency or severity of any existing violation of any standard in any area;
- Delay timely attainment of any standard or any required interim emission reduction or other milestone.

Additionally, conformity rules are only applicable in non-attainment and maintenance areas. Thus, since Nye County is in attainment with respect to federal ambient air quality standards, conformity issues need to focus on whether or not the airport improvements will affect timely attainment of the SIP.

The analysis of air quality impacts at the New Pahrump Valley Airport will need to establish an emissions inventory for the first year of operation in order to provide a basis for determining potential air quality impacts for the 5-, 10-, and 20- year time horizons. One element of that analysis will include an estimate of how many aircraft already operating in the Pahrump Regional Planning District are likely to transfer or split their activities between their existing Airport and the New Pahrump Valley Airport. Another element is the number of vehicle trips to and from the Airport (see discussion under the topic Ground Transportation, Section A.2.11). It is anticipated that the Emissions and Dispersion Modeling System (EDMS) would be used to develop the emissions inventory. The EDMS was developed by FAA and is one of the few air quality assessment tools specifically developed for evaluating aviation emissions. It includes emissions and dispersion calculations, a database of emission factors for civilian and military aircraft, and a database of emission factors for civilian ground support equipment. At this time a dispersion analysis is not anticipated.

Air quality issues associated with construction activities will be treated as a separate sub-topic under Construction Impacts (see discussion in Section A.2.5). As noted in that

discussion, that analysis will need to take into account mitigations necessary to comply with the Pahrump Regional Planning District's Dust Control Program.

There is no plan to address air quality issues on the California side of the Stateline boundary. Currently all, or portions, of BLM's Northern and Eastern Mojave planning area are in nonattainment for ozone and PM-10, based on both California and national standards. EPA has also identified certain wilderness areas and National Parks as Class I airsheds, which have stricter non-deterioration standards and mitigation requirements. There are currently no Class I airsheds in or adjacent to the Northern and Eastern Mojave planning area. However, the National Park Service has petitioned EPA for reclassification of airsheds in the Mojave National Preserve and Death Valley National Park to Class 1 as a goal. In most of Southern California, including the Northern and Eastern Mojave planning area, there is also concern for visibility-reducing particles and PM-10 precursor emissions, including oxides of nitrogen (NOx), oxides of sulfur (SOx) and reactive organic gases (ROG).

A.2.2 Areas of Critical Environmental Concern

The term "areas of critical environmental concern" (ACEC) means areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards. (See Federal Land Policy and Management Act (FLPMA), Title 43, Chapter 35, Subchapter I, Article 1702, Definitions).

The Las Vegas Field Office of BLM, in their Resource Management Plan for Clark and eastern Nye Counties, identified ACEC areas for the purpose of protecting desert tortoise areas, archeological and cultural resources, special wildlife and riparian areas, and areas that combine various resource values including scenic viewsheds. Three of these areas are within 20 to 30 miles of the proposed Airport site. The three ACEC areas are Ash Meadows ACEC and Amargosa Mesquite ACEC to the northwest, and Stump Spring ACEC to the southeast.

A.2.3 Coastal Resources

There is no potential for impacts under this category based on the proposed location of the Pahrump Valley Airport, which lies at least 275 miles from the nearest coastline.

A.2.4 Compatible Land Use

The FAA considers aircraft noise as a key element of land use compatibility, although not the only element of such compatibility. The evaluation of aircraft noise however is separate from the discussion of land use compatibility (see discussion of aircraft noise in Section 4.2.17).

Pahrump is an unincorporated town that operates with a Town Board and Town Manager overseeing parks, recreation, fairgrounds, social services, fire, and emergency services. Nye County and its Board of County Commissioners oversee other aspects of the community including planning and zoning, the sheriff's department, streets and highways, and building and development. Within Nye County, the Town of Pahrump is located within the Pahrump Regional Planning District. The Master Plan for the Pahrump Regional Planning District was updated in 2003 and adopted by the Nye County Commissioners on November 19, 2003.

The Planning District generally has a mix of land uses ranging from agricultural to heavy industrial and residential to sexually-oriented businesses. Most of the heavy industrial and commercial land uses are located along the major roadways - State Highways 160 and 372. The residential areas are scattered throughout the Pahrump Valley with a higher density of housing near major roadways. The proposed Airport site is located within a single parcel in the southwestern part of the Planning District south of Gamebird Road and west of Pahrump Valley Boulevard.

Figure A-1, presented earlier, illustrates the current long-range master plan for the Town of Pahrump in the vicinity of the proposed Airport site. Single family residential land uses are proposed to predominate along and north of Gamebird Road and east of the proposed Airport site. Today, residential units in these areas are scattered with some infill occurring. Churches and a few limited commercial uses are scattered within these residential areas. Significant industrial-commercial development is proposed adjacent to the new Airport with the eventual configuration to be determined. This development is considered to be a secondary growth inducing impact, the issues of which would be addressed separately under that topic (see discussion under Section A.2.19). A portion of the Airport vicinity area also has been set aside for habitat protection (but includes open space and some low-impact recreational uses such as trails). A major new roadway, designated as part of a future 'beltway', is proposed to serve the commercial-industrial and Airport area.

According to the Town's Master Plan Update report, land use conflicts are common in Pahrump, primarily because zoning and zoning code enforcement has been an incremental process as Nye County strives to catch up with the pace of population growth. One of the most common land use conflicts is industrial uses adjacent to residential areas. The Master Plan Update views this conflict as a health and safety threat and seeks to eliminate them by grandfathering the relevant offending use as non-conforming.

Zoning is one of the most important tools for protecting the Airport from encroachment by unwanted land uses. As a condition of receiving grants from the FAA, the Town of Pahrump and Nye County will be required to assure the FAA that they will employ planning and zoning to protect the federal investment in airport infrastructure. Only Nye County has planning and zoning powers. Following adoption of the Pahrump Regional Planning District Master Plan Update, the Nye County Board of Commissioners proceeded to make a series of amendments to bring the zoning ordinance into conformance with the Master Plan Update.

As of January 26, 2006, the County has yet to adopt any airport specific zoning. However, the County has prepared a preliminary draft of a proposed "AP Airport Zones" and is prepared to address the issue of airport protections once an Airport site is selected. The environmental analysis will seek to determine if the proposed ordinance provides adequate protection at the proposed site.

Due to proximity of the proposed Airport to the Nevada-California State Line, the topic of land use compatibility will also need to address impacts to affected land areas in California, which lie within Inyo County, the County seat of which is in Independence. Although located in Inyo County, the potentially impacted areas in California belong to the federal government and are managed by BLM as part of the California Desert Conservation Area (CDCA). BLM adopted the CDCA Plan in 1980. In July of 2002 the CDCA plan was amended in part by the Northern and Eastern Mojave Desert (NEMO) Proposed Plan which among other things addresses land uses on 2.7 million acres in the northeastern portion of the CDCA adjacent to the lands proposed for the Airport. In addition to a number of grazing allotments, the Pahrump Valley in California includes approximately 172,000 acres of BLM Category III desert tortoise habitat. The area is not considered by the U.S. Fish and Wildlife Service (USFWS) to be critical habitat. The Category III desert tortoise habitat also includes almost 15,000 acres of designated wilderness. Based on these characteristics of the California lands, compatibility would be determined based on impacts to these resources and would be addressed in relevant topics including Fish, Reptiles, Amphibians, Wildlife, Plants and Weeds (see discussion in Section A.2.8) and Endangered and Threatened Species (see discussion in Section 4.2.9).

Under FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, if the proposed Airport results in other impacts exceeding thresholds of significance which have land use ramifications, for example, disruption of communities or induced socioeconomic impacts (see discussion under Section 4.2.19), the effects on land use would also be analyzed in the context of land use compatibility.

A.2.5 Construction Impacts

Construction impacts are typically temporary in nature and tend to diminish as work progresses. Impacts that are unique to construction cross a broad range of topics including: increased traffic on nearby roads due to the movement of laborers, construction equipment, and materials; increased air pollutant emissions from these activities; potential noise disturbances; potential soil erosion; potential water quality degradation; the potential for exposure of workers to hazardous materials; and the spread of noxious weeds. There is also the potential for economic and social impacts occurring during construction, if businesses are not accessible to their customers or needed services cannot be delivered.

The scope and sequence of construction activities influences the extent of related impacts. A typical construction scenario would be established using various assumptions about the timing and magnitude of construction activities. The environmental analysis then determines whether or not impacts occur within each of the construction-affected topics noted above. For those impacts that can be reduced or eliminated through the application of mitigation measures, the mitigation measures would be identified along with the associated reduction of impact that might be expected with the mitigation measure applied.

A.2.6 Cumulative Impacts

Federal regulations, 40 Code of Federal Regulations (CFR) 1508.7, define cumulative impacts as: "...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." While much of the cumulative impact assessment discussions are expected to focus on cumulative adverse impacts of proposed airport development, it should be noted that beneficial cumulative effects may also occur.

A key element of the cumulative impacts assessment is the identification of reasonably foreseeable development to which the airport development is additive. Certainly ongoing growth in the Town of Pahrump and in Las Vegas 60 miles to the east would be considered one ingredient in this assessment. The growth taking place in Las Vegas is serving to make Pahrump a bedroom community, but Pahrump is also attracting retirees as residents and visitors. The community has been growing at an annual rate of about 4 percent (see discussion of population changes under Section A.2.20, which addresses Socioeconomic and Environmental Justice issues). Pahrump also sits astride one of the principal highway routes from the eastern United States to Death Valley National Park and the Ash Meadows National Wildlife Refuge, so recreational vehicle parks and tourist services (hotels, motels, casinos and restaurants) are also adding to cumulative change.

Cumulative impacts can cut across a number of topical areas including air quality, water resources, and floodplain management. The discussion of cumulative impacts is expected to draw upon information developed in the topical analyses and extrapolate those effects to account for the incremental influence of reasonably foreseeable development.

A.2.7 Farmlands and Soil

Southern Nevada has a history of farming that extends back before the arrival of settlers when Native American tribes were the sole occupants of lived in this area. Mesquite beans and pine nuts were important staples of early hunting and gathering subsistence, but some

farming of corn, beans and squash was also practiced. Prior to World War II (WWII) the larger ranches grew alfalfa and produced livestock. In 1948 experiments at growing cotton were successful and between the 1950s and 1970s cotton was a principal crop in the Pahrump area. A cotton gin was built in Pahrump in 1959 which made producing the crop even more profitable. By 1980 however, the price of cotton was not covering the cost of production and when one of the major growers went out of business there was insufficient cotton to keep the gin operational and cotton farming ended.

Figure A-3 is a soil survey map of the proposed Airport site and surrounding lands. The map identifies six primary soil types within the proposed site which are further identified in Table A-2. Table A-2 lists the relevant primary and associated secondary soil types and provides a summary of the soil chemistry. The Commski soil type is not limited for Airport, road and street construction, provided it is a high percentage in the association as in the Commski-Tanazza Association, but is somewhat limited in the Wechech-Commski Association. In general, most of the soil types represented in Table A-2 have low strength in combination with a high shrink-swell characteristic, making them generally unsuitable for supporting pavements without added stabilization.

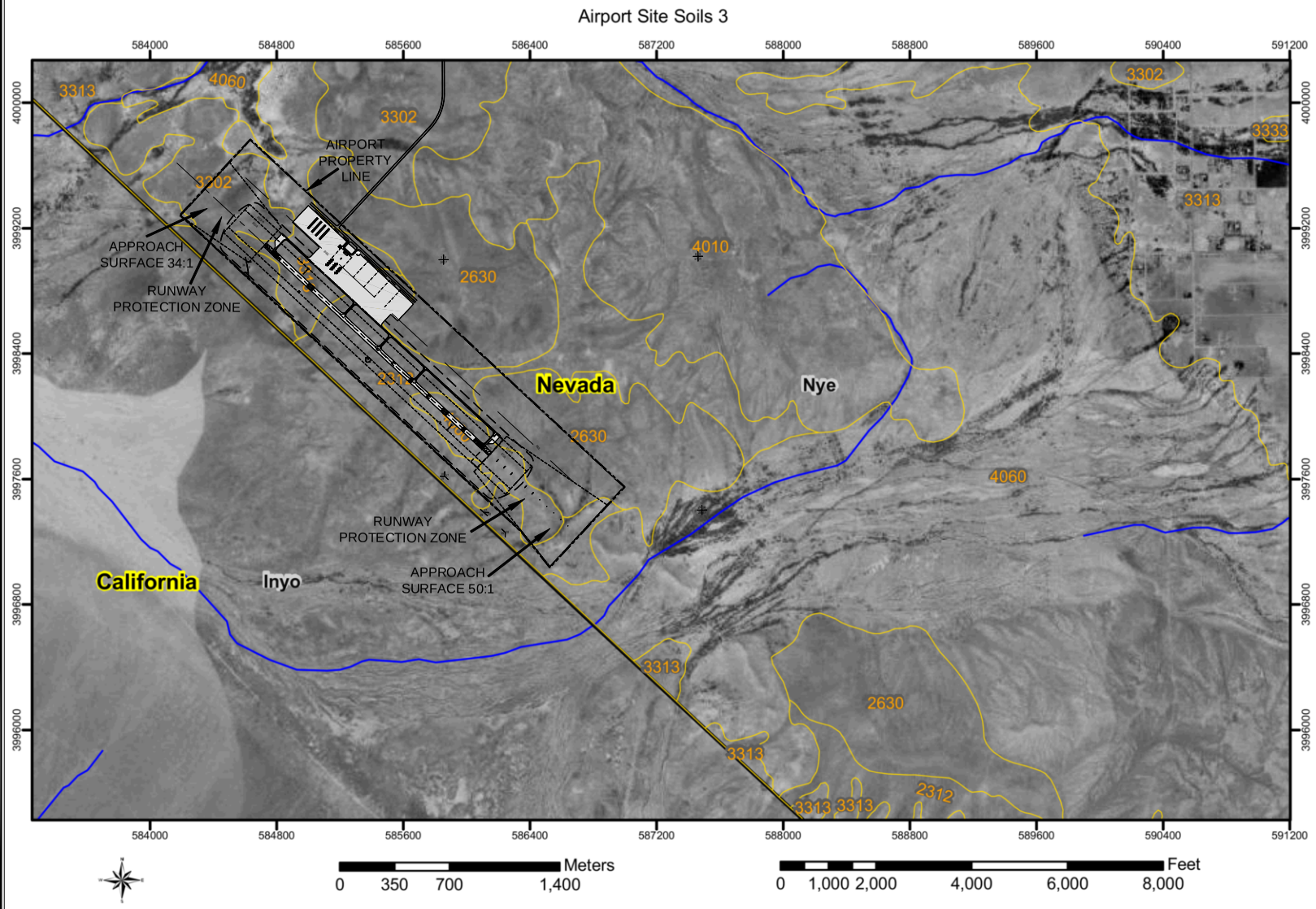
Although the Pahrump area has supported farming, agricultural uses are not allowed on publicly owned lands, so the proposed site has not been farmed under BLM management. The Farmland Protection Policy Act (FPPA), which regulates Federal actions with the potential to convert farmland to non-agricultural uses, does not appear to be applicable and further consultation with the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) is not likely to be required.

The Airport site is located in UBC Seismic Zone 2. A review of the literature indicates no surface faults in the immediate vicinity of the airport site. The USGS map of southern Nye County, Nevada, 1971, shows an active fault approximately 9 miles northeast of the Site. This fault line cuts through recent alluvium deposits and is, therefore, considered active. The USGS Water Supply Paper No. 1832 geologic map shows a concealed fault located approximately 1½ miles southwest of the Site. The concealed fault is considered inactive.

A.2.8 Fish, Reptiles, Amphibians, Wildlife, Plants and Noxious Weeds

The primary focus of this topic is on the fish, reptiles, amphibians, wildlife, plants and noxious weeds that currently occupy the area proposed for the location of the new Airport. The information represented here is taken from several secondary sources and several field surveys. An initial field survey and literature search was conducted by Aries Consultants Ltd. in 1986/1987 when the effort to find a suitable airport site was initiated. Field surveys were also conducted by BLM scientists in 2000. The focus of this investigation was the identification and mapping of any protected species, with emphasis on Pahrump Valley Buckwheat and Honey Mesquite. A third more limited field survey was conducted on

SOIL SURVEY OF NYE COUNTY, NEVADA, SOUTHWEST PART



USDA Natural Resources Conservation Service

Web Soil Survey 1.1
National Cooperative Soil Survey

3/24/2006
Page 1 of 13

PAHRUMP VALLEY AIRPORT
MASTER PLAN

AIRPORT VICINITY
SOIL SURVEY MAP

TRUE NORTH
MAGNETIC NORTH
13°06'E (2006)

NOT TO SCALE

NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

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PAHRUMP VALLEY AIRPORT	FIGURE A-3
NYE COUNTY, NEVADA	
NAME: PVA-A3-Vicinity Soil Map.DWG	NO: 4470-01
DATE: 04-20-06	PLOT SCALE: NOT TO SCALE

Table A-2

VICINITY SOILS AND SOIL CHEMISTRY

Map symbol and soil name	Depth	Cation Exchange Capacity	Soil reaction	Calcium Carbonate	Gypsum	Salinity	Sodium adsorption ratio
2312 – Commski-Tanazza Association							
Commski	0-5	5.0-10	7.9-9.0	15-30	0	0.0-2.0	1-5
	5-14	2.0-8.0	7.9-9.0	20-35	0	0.0-2.0	1-5
	14-60	2.0-8.0	7.9-9.0	30-50	0	4.0-8.0	1-12
Tanazza	0-2	3.0-9.0	7.9-9.0	20-40	0-1	0.0-4.0	0-5
	2-15	8.0-14	7.9-9.0	35-50	0-1	0.0-4.0	0-5
	15-45	13-19	7.9-9.0	40-70	15-40	0.0-4.0	0-5
	45-60	--	--	--	40-60	--	--
2630 – Wechech-Commski Association							
Wechech	0-2	5.0-10	7.9-8.4	30-40	0	0.0-2.0	0-2
	2-7	5.0-10	7.9-8.4	30-40	0	0.0-2.0	0-2
	7-60	--	--	--	--	--	--
Commski	0-5	5.0-10	7.9-9.0	15-30	0	0.0-2.0	1-5
	5-14	2.0-8.0	7.9-9.0	20-35	0	0.0-2.0	1-5
	14-60	2.0-8.0	7.9-9.0	30-50	0	4.0-8.0	1-12
3302 – Rumpah Clay							
	0-3	20-31		20-40	0	0.0-4.0	0-5
	3-54	23-31	7.9-9.0	20-40	0-1	2.0-16.0	13-30
	54-60	20-31	8.5-9.0	40-60	0-1	2.0-4.0	5-12
3313 – Besherm Clay Loam							
	0-2	14-21	8.5-9.0	25-40	0	8.0-16.0	13-30
	2-11	20-31	8.5-9.0	30-50	0-2	8.0-16.0	5-12
	11-60	18-26	7.9-9.0	40-60	0-1	4.0-16.0	5-12

Table A-2 (continued)
VICINITY SOILS AND SOIL CHEMISTRY

Map symbol and soil name	Depth	Cation Exchange Capacity	Soil reaction	Calcium Carbonate	Gypsum	Salinity	Sodium adsorption ratio
4010 - Tanazza-Wechech-Wodavar Assocaiation							
Tanazza	0-2	3.0-9.0	7.9-9.0	20-40	0-1	0.0-4.0	0-5
	2-15	8.0-14	7.9-9.0	35-50	0-1	0.0-4.0	0-5
	15-45	13-19	7.9-9.0	40-70	15-40	0.0-4.0	0-5
	45-60	--	--	--	40-60	--	--
Wechech	0-2	3.0-8.0	8.5-9.0	20-30	0	0.0-40	1-5
	2-13	5.0-12	8.5-9.0	25-40	0	0.0-40	1-5
	13-17	--	--	--	--	--	--
Wodavar	0-3	4.0-10	7.9-8.4	15-25	0	0.0-4.0	1-5
	3-16	4.0-10	9.1-9.6	25-40	0	0.0-4.0	1-12
	16-33	--	--	--	--	--	--
	33-60	5.0-10	8.5-9.0	40-60	0	0.0-4.0	1-5
4060 - Besherm-Tanazza Association							
Besherm	0-2	14-21	8.5-9.0	25-40	0	8.0-16.0	13-30
	2-11	20-31	8.5-9.0	30-50	0-2	8.0-16.0	5-12
	11-60	18-26	7.9-9.0	40-60	0-1	4.0-16.0	5-12
Tanazza	0-2	9.0-15	7.9-9.0	20-40	0-1	0.0-4.0	0-5
	2-15	8.0-14	7.9-9.0	35-50	0-1	0.0-4.0	0-5
	15-45	13-19	7.9-9.0	40-70	15-40	0.0-4.0	0-5
	45-60	--	--	--	40-60	--	--

SOURCE: *Soil Survey of Nye County, Nevada, Southwest Part*, Chemical Soil Properties, U.S. Department of Agriculture, Natural Resources Conservation Service

September 23, 2004, of two small sites proposed for the temporary installation of anemometer equipment.

A.2.8.1 Fish, Reptiles, Amphibians and Mollusks

The Town of Pahrump is not listed in State fishing guides provided by the Nevada Department of Wildlife. Fish were available in the Pahrump Valley up to the 1970s because the hydrological characteristics of the Valley produce a number of spring pools. Due primarily to agricultural water withdrawals, many springs that had very high discharge rates in the late 1800s are now dry during the summer months. The reduction of spring discharges in the Pahrump Valley (specifically at Manse Springs) resulted in the near loss of the Pahrump poolfish (Empetrichthys latos), as well as other fish species that depended on the spring pools for habitat. In 1975 the U.S. Fish and Wildlife Service (USFWS) extirpated the endemic species from extinction by relocating the remaining population to three locations throughout Nevada and outside Pahrump. The Pahrump poolfish was reclassified from Endangered to Threatened in 2004.

On June 7, 1976, the U.S. Supreme Court ruled that state-permitted water withdrawals in the vicinity of Devils Hole in the Ash Meadows National Wildlife Refuge (NWR), must be limited to a level necessary to maintain water levels in Devils Hole above a determined level. The Ash Meadows National Wildlife Refuge (NWR), located approximately 30 miles west of Pahrump, was subsequently established on June 18, 1984, to protect federally listed endangered plant and animal species, including fish, and provides habitat for at least 24 plants and animals found nowhere else in the world. The refuge includes over 23,000 acres of spring-fed wetlands and alkaline desert uplands supporting seven fish species, four of which are currently listed as endangered (see discussion of endangered species in Section A.2.9). The four endangered fish species found on the refuge are Devil's Hole pupfish (*Cyprinodon diabolis*), Ash Meadows Amargosa pupfish (*Cyprinodon nevadensis mionectes*), Warm Springs pupfish (*Cyprinodon nevadensis pectoralis*), and Ash Meadows speckled dace (*Rhinichthys osculus nevadensis*). The others are non-native, introduced species including the largemouth bass, mosquitofish, and sailfin mollie. These non-native species along with bullfrogs and crayfish are being removed by the USFWS, as they are harmful to the native fishes through competition for the same limited resources.

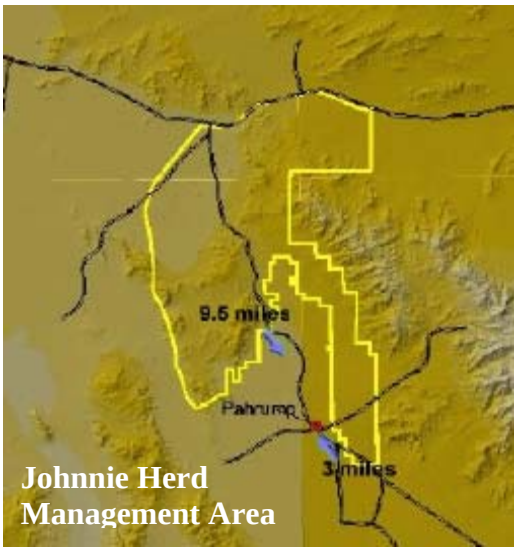
Five amphibians and 20 reptiles are also known to occur on the refuge. Toads are most visible in spring and summer and Woodhouse's Toad (Bufo woodhousei), are the most common species observed. Large, bulky Chuckwalla lizards (Sauromalus obesus) are found on the rocky slopes during the early spring. Snakes are also seen during the spring and early fall and become more nocturnal during the heat of mid-summer. Coachwhip (Masticophis flagellum) and gopher snakes (Pituophis melanoleucus) are two of the more common snakes seen at Ash Meadows.

Table A-3 provides a summary listing of the reptiles and amphibians identified in the 1987 evaluation of potential airport sites. The list combines species that might be expected to be found and those that were observed. It should be noted that the Desert Tortoise (*Gopherus agassizii*), an endangered species, has been observed within the proposed airport site as reported in the September 2004 field study of anemometer sites. An updated biological field survey is expected to be conducted as part of the environmental assessment.

The Nopah Range Wilderness area located across the Stateline in California (see discussion under the topic Wilderness, Section A.2.24), includes approximately 172,000 acres of BLM Category III desert tortoise habitat. Category III habitat is defined as areas that are not essential to maintenance of viable populations, that contain low to medium densities, and that are not contiguous with medium- or high density areas and in which the population is stable or decreasing. See further discussion under the topic Endangered and Threatened Species/Habitat, Section A.2.9.

A.2.8.2 Wildlife (Mammals and Birds)

Table A-4 provides a listing of mammals that might be expected in the area or that were observed during previous field surveys. In addition to those mammals listed, feral dogs and cats, as well as wild horses and burros may be found in the area. Table A-5 identifies Herd Areas (HA) and Herd Management Areas (HMA) in the general vicinity of Pahrump. The distinction between these two types of areas is that the HMAs are managed for wild horses and burros and the HAs are not. The Appropriate Management Level (AML) in Table A-5 is the number of wild horses that can inhabit a herd management area on a year-long basis while maintaining a thriving natural ecological balance and avoiding deterioration of the rangeland and riparian resources. Depending upon the source, information about AML numbers and acreages managed differ slightly. Because forage production on Nevada rangelands is limited it must be shared among wildlife, livestock, and wild horses. The AML is set by public rangeland managers through a rangeland assessment and public review process known as the Allotment Evaluation/Multiple Use Decision.



The Johnnie Herd Management Area (HMA) somewhat surrounds the Town of Pahrump, as shown in the illustration above, and extends to within about 8 miles of the proposed airport site. BLM has administrative responsibility for wild horses and burros within this HMA. The area consists of a total of 212,570 acres, with 177,662 acres managed by the BLM and 34,908 acres managed by the U. S. Forest Service (note these numbers are slightly different

Table A-3

REPTILES AND AMPHIBIANS EXPECTED AND/OR OBSERVED
Vicinity of Proposed New Pahrump Valley Airport

Common Name	Botanical Name
Desert Tortoise	*Gopherus agassizii* - Endangered
Western Banded Gecko	*Coleonyx variegatus*
Gila Monster	*Heloderma suspectum* - Venemous
Desert Night Lizard	*Xantusia vigilis*
Black-collared Lizard	*Crotaphytus insularis*
Desert Iguana	*Dipsosaurus dorsalis*
Chuckwalla	*Sauromalus obesus*
Brush Lizard	*Urosaurus graciosus*
Longnose Leopard Lizard	*Bambelia wislizenii*
Yellowback Spiny Lizard	*Sceloporus magister uniformis*
Side-blotched Lizard	*Uta stansburiana*
Zebratail Lizard	*Callisaurus draconoides*
Western Whiptail	*Cnemidophorus tigris*
Sagebrush Lizard	*Sceloporus graciosus*
Western Patchnose Snake	*Salvadora hexalepis*
Striped Whipsnake	*Masticophis taeniatus*
Red Coachwhip	*Masticophis flagellum piceus*
Western Blind Snake	*Leptotyphlops humilis humilis*
Western Blackhead Snake (Utah	*Tantilla planiceps utahensis*
Ground Snake	*Sonora semiannulata*
Racer	*Coluber constrictor*
Kingsnake	*Lamphropeltis getulus californae*
Western Shovelnose Snake (Mojave	*Chionactis occipitalis occipitalis*
Western Shovelnose Snake (Nevada	*Chionactis occipitalis talpina*
Longnose Snake	*Rhinocheilus lecontei lecontei*
Sidewinder	*Crotalus cerastes - Venemous*
Western diamondback Rattlesnake	*Crotalus atrox - Venemous*
Mojave Rattlesnake	*Crotalus scutulatus* - Very Venemous
Gopher Snake	*Pituophis melanoleucus deserticola*
Spotted Leaf nose Snake	*Phyllorhynchus decurtatus*
Night Snake	*Hypsiglena torquata deserticola*
Glossy Snake (Mojave	*Arizona elegans candida*
Glossy Snake (Desert	*Arizona elegans eburnata*
Red-spotted Toad	*Bufo punctatus*

SOURCE: Aries Consultants Ltd. *Pahrump Valley Airport Site Selection Study*. Table A-2, Species Listing, Pahrump Valley Airport Study Area. Prepared for Nye County, Nevada. March 1987.

Table A-4

MAMMALS EXPECTED AND/OR OBSERVED
Vicinity of Proposed New Pahrump Valley Airport

Common Name	Botanical Name
Yuma Myotis	*Myotis yumanensis*
California Myotis	*M. californicus*
Silver-haired bat	*Lasionycteris noctivagans*
Western Pipistrelle	*Pipistrellus hesperus*
Spotted Bat	*Euderma maculatum*
Townsend' s Big-eared Bat	*Plecotus townsendii*
Pallid Bat	*Antrozous pallidus*
Brazilian Free-tailed Bat	*Tadarida brasiliensis*
Botta's Pocket Gopher	*Thomomys bottae*
Desert Shrew	*Motiosorex crawfordi*
Arizona Pocket Mouse	*Perognathus amplus*
Little Pocket Mouse	*P. longimembris*
Long-tailed Pocket Mouse	*P. formosus*
Chisel-toothed Kangaroo Rat	*Dipodomys microps*
Desert Kangaroo Rat	*D. deserti*
Merriam's Kangaroo Rat	*D. merriami*
Western Harvest Mouse	*Reithrodontomys megalotis*
Southern Grasshopper Mouse	*onychomys torridus*
Deer Mouse	*Peromyscus maniculatus*
Brush Mouse	*P. boylii*
Desert Woodrat	*Neotoma lepida*
House Mouse	*Mus musculus*
Sagebrush Vole	*Lagurus curtatus*
White-tailed Antelope Squirrel	*Ammospermophilus leucurus*
Townsend' s Ground Squirrel	*Spermophilus toonsendii*
Round-tailed Ground Squirrel	*S. tereticaudus*
Desert Cottontail	*Sylvilagus audobonii*
Black-tailed Jack Rabbit	*Lepus californicus*
Raccoon	*Procyon lotor*
Striped Skunk	*Mephitis mephitis*
Badger	*Taxidea taxus*
Bobcat	*Felis rufus*
Gray Fox	*Urocyon cinereoargenteus*
Coyote	*Canis latrans*
Pronghorn	*Antilocapra americana*
Mule Deer	*Odocoileus hemionus*

SOURCE: Aries Consultants Ltd. *Pahrump Valley Airport Site Selection Study*. Table A-2, Species Listing, Pahrump Valley Airport Study Area. Prepared for Nye County, Nevada. March 1987.

Table A-5

HERD AREAS AND HERD MANAGEMENT AREAS
Vicinity of Proposed New Pahrump Valley Airport

Herd Area Name	Herd Code	Herd Area		Herd Management Area		Appropriate Management Level (AML) [1]		Estimated Population	
		BLM Acres	Other Acres	BLM Acres	Other Acres	Horse	Burro	Horse	Burro
Ash Meadows	NV0509	97,831	17,661	97,831	17,661	0	0	0	0
Chicago Valley	CA0681	311,718	21,310	258,409	19,189	12	0	6	0
Johnnie [2]	NV0510	177,310	2,070	177,310	2,070	0	100	57	298
Wheeler Pass [2]	NV0507	273,260	3,644	273,260	3,644	75	50	275	82

NOTES: 1) The Appropriate Management Level (AML) is the number of wild horses that can inhabit a herd management area on a year-long basis while maintaining a thriving natural ecological balance and avoiding deterioration of the rangeland and riparian resources. Because forage production on Nevada rangelands is limited it must be shared among wildlife, livestock, and wild horses. The AML is set by public rangeland managers through a rangeland assessment and public review process known as the Allotment Evaluation/Multiple Use Decision.

2) Only BLM acres displayed/Managed by BLM.

SOURCE: *Herd Area Statistics – FY2005*. Department of the Interior, Bureau of Land Management

from Table A-5 and reflect a different source). During the hot months of the year, burros occupy areas characterized by ravines which supply shade. Wild horses tend to occupy the open country. During the cooler season, horses and burros roam the entire HMA.

The public lands are also public rangelands with permitted cattle grazing authorized. At least two grazing allotments are located within the Nopah Range Wilderness Area, which, as noted earlier, is located across the Stateline in California. The Horse Thief Springs Allotment (#9007), which overlaps several wilderness areas in California southeast of the Airport site, can be grazed year-long with 202 cattle. The Pahrump Valley Allotment (#8000) has 26,952 acres, 90 percent of which is in the Nopah Wilderness Area. The authorized use is a maximum of 175 head of cattle from February 15 to February 28, and 175 head of cattle from March 1 to April 15.

Table A-6 provides a listing of birds that might be expected in the area or that were observed during previous field surveys. Since the proposed Airport site consists of undisturbed vacant land it has the potential of serving as an intermediate resting place for migratory birds. At the Ash Meadows NWR, for example, over 239 different species of birds have been recorded during spring (April and May) and fall (mid-August through September) migration periods. While the marshes and reservoirs at Ash Meadows support many of these species the mesquite and ash groves also harbor resident and migratory birds year-round. As discussed in Section A.2.8.3 Plants, which addresses plant species, various water courses throughout the proposed Airport sites contain honey mesquite (Prosopis glandulosa) that can serve as habitat. The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) and subsequent amendments prohibits private parties and federal agencies from intentionally taking a migratory bird, their eggs, or nests. Take is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect". The Environmental Assessment will need to explore the special precautions necessary during construction, as well as more permanent long-term protections that would be necessary to conform to the Migratory Bird Treaty Act.

A.2.8.3 Plants

Table A-7 lists the plants and other flora that might be expected in the area or were observed during previous field surveys. Not specifically listed are all of the introduced agricultural, landscape, and ornamental species. A search of the Nevada Natural Heritage Program database in September 2004 indicated that at least three species of concern were likely to be found in the vicinity. These included Pahrump Valley buckwheat (Eriogonum bifurcatum) and Parish phacelia (Phacelia parishii) listed federally as species of concern, and cacti and yuccas, which are protected under Nevada law (NRS 527). These are discussed further under the topic of Endangered and Threatened Species, Section A.2.9. Pahrump Valley buckwheat is found within the proposed Airport site as generally shown on Figure A-4. The source of this mapping is the BLM. This plant is a low spreading annual 1 to 4 centimeters high and is restricted to the Mesquite, Pahrump and Stewart Valleys along the California-Nevada border.

Table A-6

BIRDS EXPECTED AND/OR OBSERVED
Vicinity of Proposed New Pahrump Valley Airport

Common Name	Botanical Name
Turkey Vulture	*Cathartes aura*
Northern Harrier	*Circus cyaneus*
Cooper's Hawk	*Accipter cooperii*
Harris' Hawk	*Parabuteo unicinctus*
Swainson' s Hawk	*Buteo swainsoni*
Red-tailed Hawk	*B. jamaicensis*
Ferruginous Hawk	*B. regalis*
Rough-legged Hawk	*B. lagopus*
Golden Eagle	*Aquila chrysaetos*
American Kestrel (Sparrow Hawk)	*Falco sparverious*
Chukar	*Alectoris chukar* - introduced gamebird
Sage Grouse	*Centrocerous urophasianus*
Gambel's Quail	*Callipepla gambelii*
Mourning Dove	*Zenaida macroura*
Greater Roadrunner	*Geococcyx californianus*
Common Barn Owl	*Tyto alba*
Great Horned Owl	*Bubo virginianus*
Burrowing Owl	*Athene cunicularia*
Lesser Nighthawk	*Chordeiles acutipennis*
Common Nighthawk	*C. minor*
Common Poorwill	*Phalaenoptilus nuttallii*
Black-chinned Hummingbird	*Archilochus alexandri*
Costa's Hummingbird	*Calypte costae*
Northern Flicker	*Colaptes auratus*
Black Phoebe	*Sayornis nigricans*
Say's Phoebe	*S. saya*
Ash-throated Flycatcher	*myiarchus cinerascens*
Western Kingbird	*Tyrannus verticalis*
Horned Lark	*Eremphila alpestris*
Violet-green Swallow	*Tachycineta thalassina*
Black-billed Magpie	*Pica pica*
Common Raven	*Corvus corax*
Cactus Wren	*Campylorhynchus brunneicapillus*
Black-tailed Gnatcatcher	*Polioptila melanura*

Table A-6 (continued)
BIRDS EXPECTED AND/OR OBSERVED
Vicinity of Proposed New Pahrump Valley Airport

Common Name	Botanical Name
Western Bluebird	*Sialia mexicana*
Northern Mockingbird	*Mimus polyglottos*
Sage Thrasher	*Oreoscoptes montanus*
LeConte's Thrasher	*Toxostorna lecontei*
Loggerhead Shrike	*Lanius ludovicianus*
European Starling	*Sturnus vulgaris*
Blue Grosbeak	*Guiraca caerulea*
Phainopepla	*Phainopepla nitens*
Green-tailed Towhee	*Pipilo chlorurus*
Brewer's Sparrow	*Spizella breweri*
Vesper Sparrow	*Pooecetes gramineus*
Black-throated Sparrow	*Amphispiza bilineata*
Sage Sparrow	*A. belli*
Dark-eyed Junco	*Junco hyemalis*
Brown-headed Cowbird	*Molothrus ater*
House Finch	*Carpodacus mexicanus*

SOURCE: Aries Consultants Ltd. *Pahrump Valley Airport Site Selection Study*. Table A-2, Species Listing, Pahrump Valley Airport Study Area. Prepared for Nye County, Nevada. March 1987

Table A-7

FLORA EXPECTED AND/OR OBSERVED
Vicinity of Proposed New Pahrump Valley Airport

Common Name	Botanical Name
Turkey Vulture	*Cathartes aura*
Northern Harrier	*Circus cyaneus*
Beavertail Cactus	*Opuntia basilaris*
Claret Cup Cactus	*Echinocereus triglochidiatus*
Desert Five Spot	*Malvastrum rotundifol ium*
Crescent Milkvetch	*Astragalus amphioxys*
Desert Sand Verbena	*Abronia villosa*
Purple Mat	*Nama demissum*
Fagonia	*Fagonia californica*
Filaree Storksbill	*Erodium cicutarium*
Long-leaved Phlox	*Phlox longifolia*
Trailing Four O' Clock	*Allionia incarnata*
Mojave Aster	*Machaeranthera tortifolia*
Chia	*Salvia columbariae*
Penstemon	*Penstemon sp.*
Coulter's Lupine	*Lupinus sparsiflorus*
White Horsenettle	*Solanum elaeagnifolium*
Bladder Sage	*Salazaria mexicana*
Spike Broomrape	*Orobanche multiflora*
Western Peppergrass	*Lepidium montanum*
Fremont' s Peppergrass	*L. fremontii*
Californis Spectacle Pod	*Dithyrea californica*
Clammyweed	*Polanisia dodecandra*
Climbing Milkweed	*Sarcostemma cyanchoides*
Esteve's Pinchushion	*Chaenactic stevioides*
Tobacco Weed	*Atrichoseris platyphylla*
Desert Chicory	*Rafinesquia neanexicana*
Spreading Fleabane	*Erigeron divergens*
Mojave Desert Star	*Monoptilon bellioides*
Desert Anemone	*Anemone tuberosa*
Birdcage Evening Primrose	*Oenothera deltoides*
Great Desert Poppy	*Arctomecon merriami*
Yellow Desert Poppy	*A. californica*
Apache Plume	*Fallugia paradoxa*

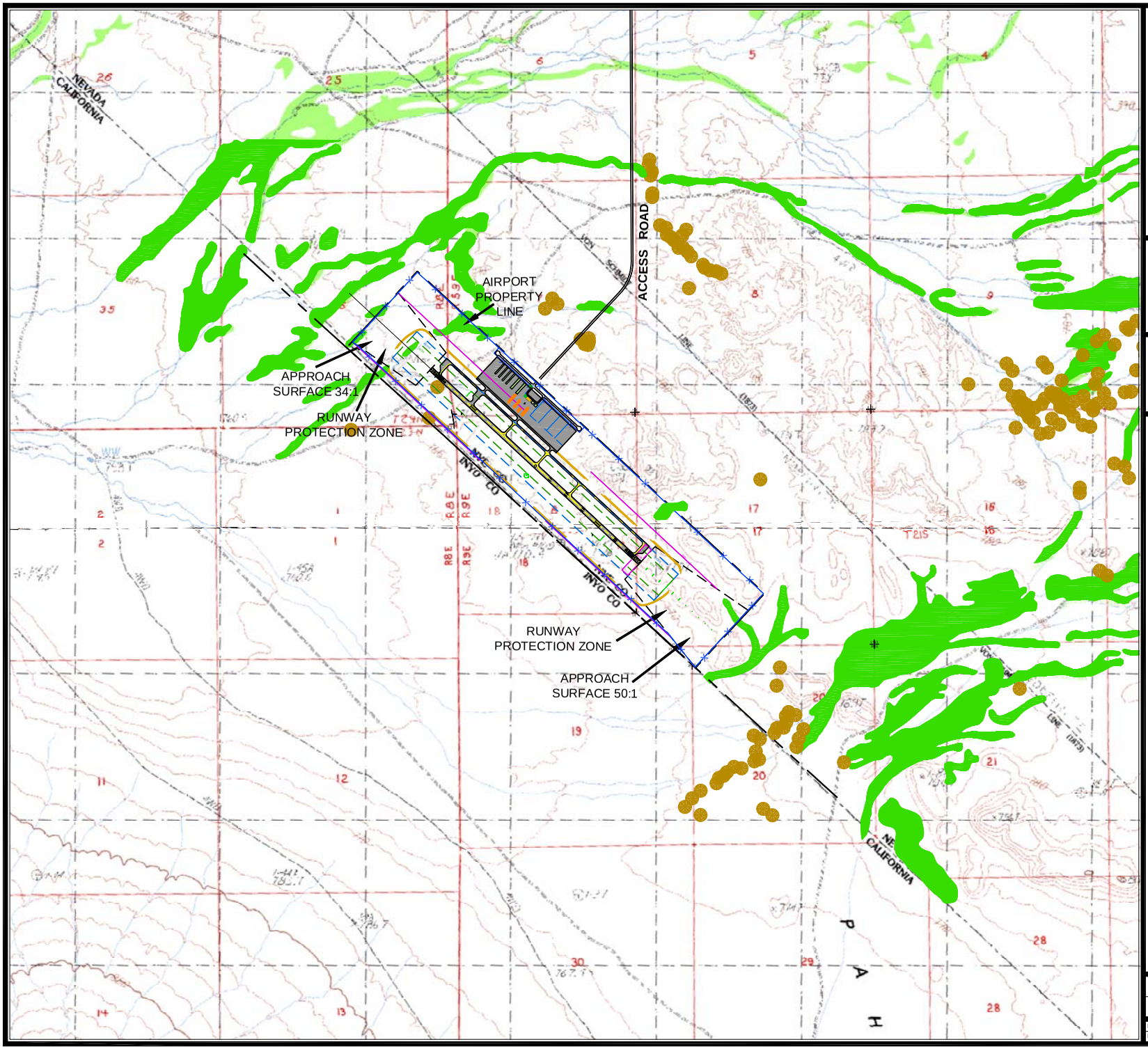
Table A-7 (continued)
FLORA EXPECTED AND/OR OBSERVED
Vicinity of Proposed New Pahrump Valley Airport

Common Name	Botanical Name
Spotted Langloisia	*Langloisia punctata*
Desert Lily	*Hesperocallis undulata*
Jimsonweed	*Datura stramonium*
Southwestern Thorn Apple	*D. wrightii*
Sweet-scented Heliotrope	*Hel iotropium convolvulaceum*
Rattlesnake Weed	*Euphorbia albomarginata*
Desert Tobacco	*Nicotiana trigonophylla*
Coyote Tobacco	*N. attenuata*
Southwestern Ringstem	*Anulocaulis leiosolenus*
Desert Trumpet	*Eriogonum inflatum*
Golden Prince's Plume	*Stanleya pinnata*
Jackass Clover	*Wislizenia refracta*
Yellow Bea Plant	*Cleome lutea*
Golden Spider Flower	*C. platycarpa*
Sulphur Flower	*Erogonum umbellatum*
Yellow Peppergrass	*Lepidium flavum*
Yellow Twining Snapdragon	*Antirrhinum filipes*
Devil's Claw	*Proboscidea altheaefolia*
Desert Velvet	*Psathyrotes ramosissima*
Plains Pricklypear	*Opuntia polyacantha*
Yellow Head	*Trichoptilium incisum*
Desert Dandelion	*Malacothrix Glabrata*
Snakehead	*Malacothrix coulteri*
Wooly Daisy	*Eriophyllum wallacei*
Desert Marigold	*Baileya multiradiata*
Yellow Spiny Daisy	*Haplopappus spinulosus*
Sunray	*Enceliopsis nudicaulis*
Desert Sunflower	*Geraea canescens*
Brittlebush	*Encelia farinosa*
Paperflower	*Psilostrophe cooperi*
Buffalo Gourd	*Curcurbita foetidissima*
Rough Menodora	*Mendora scabra*
Puncture Vine	*Tribulus terrestris*
Desert Gold	*Linthanus aureus*
Ghost Flower	*Mohavea confertiflora*

Table A-7 (continued)
FLORA EXPECTED AND/OR OBSERVED
Vicinity of Proposed New Pahrump Valley Airport

Common Name	Botanical Name
Desert Rock Nettle	*Eucnide urens*
Desert Primrose	*Cenothera brevipes*
Desert Globemallow	*Sphaeralcea ambigua*
Coulter' s Globemallow	*S. coulteri*
Desert Paintbrush	*Castilleja chromosa*
Skyrocket	*Ipomopsis aggregata*
Freckled Milkvetch	*Astragalus lentigensus*
Desert Candle	*Caulanthus inflatus*
Yucca	*Yucca sp.*
Parry Saltbush	*Atriplex parryi*
Mojave Sage	*Salvia mohavensis*
Wooly Bur Sage	*Ambrosia eriocentra*
Creosote Bush	*Larrea tridentata*
Shadscale	*Atriplex confertifolia*
Cattle Spinach	*Atriplex polycarpa*
White Bur Sage	*Ambrosia dumosa*
Desert Holly	*Atriplex hymenelytra*
Burrobush	*Hymenoclea salsola*
Catclaw	*Acacia greggii*
Honey Mesquite	*Prosopis glandulosa*
Screwbean Mesquite	*P. pubenscens*
Tamarisk	*Tamrix sp.*
Arrow Weed	*Pluchea sericea*
Desert Willow	*Chilopsis linearis*
Fremont Cottonwood	*Populus fremontii*

SOURCE: Aries Consultants Ltd. *Pahrump Valley Airport Site Selection Study*. Table A-2, Species Listing, Pahrump Valley Airport Study Area. Prepared for Nye County, Nevada. March 1987.



PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE

PAHRUMP
NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

KNOWN PAHRUMP VALLEY BUCKWHEAT AND HONEY MESQUITE AREAS

LEGEND	
	PROTECTED PAHRUMP VALLEY BUCKWHEAT
	HONEY MESQUITE

TRUE NORTH

MAGNETIC NORTH
13°06'E (2006)

0 2,000
1,000 3,000
GRAPHIC SCALE IN FEET

NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

ARIES CONSULTANTS LTD.

PAHRUMP VALLEY AIRPORT	FIGURE A-4
NYE COUNTY, NEVADA	
NAME: PVA-A4-Buckwheat Mesquite.dwg	NO: 4470-01
DATE: 04-20-06	PLOT SCALE: 1"=3,000'

Honey mesquite (Prosopis glandulosa) is a common species found in the various drainageways that cross the proposed Airport site as generally shown on Figure A-4. Honey mesquite is a thorny tree ten to thirty feet in height. Its seed pods are an important source of food for insects, livestock, deer, birds and small mammals. Honey mesquite also provides cover for birds and small mammals. Native Americans used the seeds for bread and alcohol. A black dye or a cement for pottery can be generated from mesquite and the gum from bark was eaten as candy or dissolved in water for dysentery, wound or scratchy throat treatment. The wood is good for furniture, firewood, flooring or posts. It is insect and disease tolerant and can be used as an ornamental shrub or in landscaping designs.

A.2.8.4 Noxious Weeds

Weeds are plants that are designated by a Federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property. Weeds can be native or non-native, invasive or non invasive, and noxious or not noxious. A noxious weed is commonly defined as a plant that grows out of place and is competitive, persistent, and destructive. Invasive plants include not only noxious weeds but also other plants that are not native to this country. Many consider a plant invasive if it has been introduced into an environment where it did not evolve. Once a plant is classified as an invasive weed, it can attain a noxious, or harmful, status only through legislation. An invasive weed is usually declared noxious once its effect upon the environment is understood. More than 500 weeds in the United States and Canada are classified as noxious.

BLM, on its weeds web site (http://www.blm.gov/weeds/), points out that invasive weeds will:

- destroy wildlife habitat
- reduce opportunities for hunting, fishing, camping and other recreational activities
- displace many Threatened and Endangered Species
- reduce plant and animal diversity because of weed monocultures-single plat species that over run all others in an area
- disrupt waterfowl and neo-tropical migratory bird flight patterns and nesting habitats
- cost millions of dollars in treatment and loss of productivity to private land owners.

The Nevada Department of Agriculture has reported that 276,105 acres of the State are known to be infected by weeds as determined through various reporting agencies. Within that report, the BLM reported that 195,750 acres are affected out of the 46,500,000 acres they manage in Nevada - about 71 percent of the State's total infected acreage. The BLM has an action plan called Partners Against Weeds (PAW) which outlines the steps needed to position the agency for effective weed prevention and control through a series of policy, administrative, and implementing actions. Among these strategies is consideration and analysis of the potential for weed spread in NEPA documents and the development and implementation of preventative and rehabilitation measures for each management action

involving surface disturbance. The Environmental Assessment will need to address weed mitigation strategies during construction and may need to address the issue longer term to prevent the proposed Airport from adding to the larger state-wide problem. Weed invasion and establishment is considered to be moderate to high within the proposed project area. The most common disturbance areas include roadsides and adjacent washes.

In order to control and manage noxious and invasive weeds in Nevada, the Nevada Department of Agriculture (NDOA) assembled an interagency working group called the Nevada Weed Action Committee. The mission of this committee is to coordinate and facilitate local, county, state and federal agency programs and projects pertaining to the control and management of noxious and invasive weeds in Nevada. The Committee created the Nevada State Weed Plan. Table A-8 provides a listing of noxious weeds in the State of Nevada as reported in the Weed Plan. In 1992, there were 29 weed species officially designated by NDOA as noxious. By 2002, the total was 46 species (several of which may not be identified in Table A-8 because it was prepared in 2000).

Noxious weeds have impacted several land cover types. Floodplains and riparian zones have been smothered with perennial pepperweed and whitetop. Tamarisk obstructs stream channels. Croplands are infested by Russian knapweed and yellow star thistle. Musk thistle and diffuse knapweed choke out native plants from pastures and other ranchlands.

Cheatgrass (Bromus tectorum) is the most widespread "invasive" plant in Nevada. Cheatgrass and its southern cousin, red brome, exemplify the vulnerability of the state's rangelands. Cheatgrass has invaded sagebrush zones in numerous basins. Scientists have observed the plant invading mountain shrub zones, indicating it may be adapting to other climate zones. Following repeated wildfires, cheat grass forms a monoculture. During the growing season, livestock, wild horses, and other grazers can eat and gain nutritional value from cheat grass. However, after cheatgrass ‘cures’ in early to late spring, the nutritional value and edibility of the plants declines.

A.2.9 Endangered and Threatened Species/Habitat

Section 7 of the Endangered Species Act (ESA), as amended, applies to Federal agency actions and sets forth requirements for consultation to determine if the proposed action “may affect” an endangered or threatened species. If an agency determines that an action “may affect” a threatened or endangered species, then Section 7(a)(2) requires each agency, generally the lead agency, to consult with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS), as appropriate, to ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of any Federally listed endangered or threatened species or result in the destruction or adverse modification of critical habitat. The effects on fish, wildlife, and plants include the destruction or alteration of habitat and the disturbance or elimination of fish, wildlife, or plant populations.

Table A-8

NEVADA DEPARTMENT OF AGRICULTURE NOXIOUS WEEDS LIST

Common Name	Scientific Name
African Rue	*Peganum harmala*
Austrian fieldcress	*Rorippa austriaca*
Austrian peaweed	*Sphaerophysa salsula / Swainsona salsula*
Black henbane	*Hyoscyamus niger*
Camelthorn	*Alhagi camelorum*
Common crupina	*Crupina vulgaris*
Dyer's woad	*Isatis tinctoria*
Eurasian water-milfoil	*Myriophyllum spicatum*
Goats rue	*Galega officinalis*
Klamath weed	*Hypericum perforatum*
Hemlock: (a) Poison (b) Water	*Conium maculatum* *Cicuta maculata*
Horse-nettle: (a)Carolina (b) White	*Solanum carolinense* *Solanum elaeagnifolium*
Houndstongue	*Cynoglossum officinale*
Hydrilla	*Hydrilla verticillata*
Knapweed: (a) Diffuse (b) Russian (c) Spotted (d) Squarrose	*Centaurea diffusa* *Acroptilon repens* *Centaurea masculosa* *Centaurea virgata Lam. Var. squarrose*
Leafy spurge	*Euphorbia esula*
Mayweed chamomile	*Anthemis cotula*
Mediterranean sage	*Salvia aethiopis*
Medusahead	*Taeniatherum caput-medusae*
Perennial pepperweed or tall whitetop	*Lepidium latifolium*
Puncture vine	*Tribulus terrestris*
Purple loosestrife	*Lythrum salicaria*
Rush skeletonweed	*Chondrilla juncea*
Saltcedar (tamarisk)	*Tamarix ramosissima*

Table A-8 (continued)
NEVADA DEPARTMENT OF AGRICULTURE NOXIOUS WEEDS LIST

Common Name	Scientific Name
Sorghum species, perennial, including, but not limited to: (a) Johnson grass (b) Sorghum alum (c) Perennial sweet sudan	*None Provided*
Sulfur cinquefoil	*Potentilla recta*
Thistle: (a) Canada	*Cirsium arvense*
(b) Musk	*Carduus nutans*
(c) Scotch	*Onopordum acanthium*
(d) Sow	*Sonchus arvensis*
(e) Iberian star	*Centaurea iberica*
(f) Purple star	*Centaurea calcitrapa*
(g) Yellow star	*Centaurea solstiltialis*
Toadflax, Dalmatian	*Linaria dalmatica*
Toadflax, yellow	*Linaria vulgaris*
Whitetop or hoary cress	*Cardaria draba*

SOURCE: Appendix A, "Noxious Weeds List", *Nevada State Weed Plan*. Prepared by the Nevada Weed Action Committee. 2000

Section 9 of the Endangered Species Act prohibits the "take" of any fish or wildlife species listed under the ESA as endangered; under Federal regulation, take of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Table A-9 provides BLM's listing of sensitive species which includes input from the Nevada Division of Wildlife, Nevada Division of Forestry, Nevada Natural Heritage Program, and the U.S. Fish & Wildlife Service.

In September 2004, a field survey was conducted on two small areas proposed for anemometer sampling equipment and associated walking access routes. The purpose of the survey was to search for plants and animals that are BLM species of concern, listed (threatened, endangered, or candidate) by the USFWS, or protected under Nevada Revised Statutes. Information from the Nevada Natural Heritage Program database was used to identify sensitive species that might be found in the area prior to the field visit. The identification of these and other species, their habitats and results of the survey are summarized below:

Species of Concern	USFWS	BLM	Nevada [1]
Pahrump Valley buckwheat (*Eriogonum bifurcatum*)	SOC [2]	Sensitive	S2
Parish phacelia (*Phacelia parishii*)	SOC [2]	Sensitive	S2
Cacti and yuccas	No status	Sensitive	CY
Desert tortoise (*Gopherus agassizii*)	Threatened	Sensitive	S3[3]
gila monster (*Heloderma suspectum*)	SOC [2]	Sensitive	S2[3]
chuckwalla *(Sauromalus obesus)*	SOC [2]	Sensitive	S354

NOTES: 1) The State of Nevada protects plants categorized as S2 or above as `imperiled' and all cacti and yuccas (CY) under NRS 527.
2) SOC = Species of Concern
3) Species under NRS 501

SOURCE: *A Biological Evaluation of Proposed Anemometer Sites Near Pahrump, Nye County, Nevada*. Prepared by Knight & Leavitt Associates. September 2004.

Table A-9

SENSITIVE SPECIES LIST

Common Name	Scientific Name
Mammals (17 total)	
greater western mastiff bat	*Eumops perotis californicus*
Allen's big-eared bat	*Idionycteris phyllotis (=Plecotus p.)*
California leaf-nosed bat	*Macrotus californicus*
Pahranagat Valley montane vole	*Microtus montanus fucosus*
Ash Meadows montane vole	*Microtus montanus nevadensis*
small-footed myotis	*Myotis ciliolabrum*
long-eared myotis	*Myotis evotis*
fringed myotis	*Myotis thysanodes*
cave myotis	*Myotis velifer*
long-legged myotis	*Myotis volans*
Yuma myotis	*Myotis yumanensis*
big free-tailed bat	*Nyctinomops macroti (=Tadarida m., T. molossa)*
pale Townsend's big-eared bat	*Plecotus townsendii pallescens*
Pacific Townsend's big-eared bat	*Plecotus townsendii townsendii*
Preble's shrew	*Sorex preblei*
Fish Spring pocket gopher	*Thomomys umbrinus abstrusus*
San Antonio pocket gopher	*Thomomys umbrinus curtatus*
Birds (5 total)	
Black Tern	*Chlidonias niger*
Western Snowy Plover	*Charadrius alexandrinus nivosus*
Western Sage Grouse	*Centrocercus urophasianus*
Mountain quail	*Oreortyx pictus*
Phainopepla	*Phainopepla nitens*
Reptiles (1 total)	
Chuckwalla	*Sauromalus obesus*
Amphibians (2 total)	
Arizona toad	*Bufo microscaphus microscaphus*
Amargosa toad	*Bufo nelsoni*
Fishes (10 total)	
flannelmouth sucker	*Catostomus latipinnis*
Wall Canyon sucker	*Catostomus sp.*
Moorman White River springfish	*Crenichthys baileyi thermophilus*
Hot Creek Valley tui chub	*Gila bicolor ssp.*
Independence Valley tui chub	*Gila bicolor isolate*
Virgin River spinedace	*Lepidomeda mollispinis mollispinis*
Bonneville cutthroat trout	*Oncorhyncus clarki utah*
interior redband trout	*Oncorhyncus mykiss gibbsi*
Meadow Valley Wash speckled dace	*Rhinichthys osculus ssp.*
Oasis Valley speckled dace	*Rhinichthys osculus ssp*

Table A-9 (continued)
SENSITIVE SPECIES LIST

Common Name	Scientific Name
Snails (7 total)	
Pahranagat pebblesnail	*Fluminicola merriami*
Schell Creek mountainsnail	*Oreohelix nevadensis*
Oasis Valley springsnail	*Pyrgulopsis micrococcus*
Wongs springsnail	*Pyrgulopsis wongi*
Red Rocks springsnail #1	*Pyrgulopsis sp.*
Red Rocks springsnail #2	*Pyrgulopsis sp.*
grated tryonia	*Tryonia clathrata*
Clams & Mussels (1 total)	
California floater	*Anodonta californiensis*
True Bugs (1 total)	
Pahranagat naucorid bug	*Pelocoris shoshone Shoshone*
Beetles (12 total)	
Crescent Dune aegialian scarab	*Aegialia crescenta*
Hardy's aegialian scarab	*Aegialia hardyi*
large aegialian scarab	*Aegialia magnifica*
Crescent Dune aphodius scarab	*Aphodius sp.*
Big Dune aphodius scarab .	*Aphodius sp*
Sand Mountain aphodius scarab	*Aphodius sp.*
Rulien's miloderes weevil	*Miloderes sp.*
Giuliani's dune scarab	*Pseudocotalpa giulianii*
Sand Mountain serican scarab	*Serica sp.*
Crescent Dune serican scarab	*Serica sp.*
Devils Hole warm spring riffle beetle	*Stenelmis calida calida*
Moapa warm spring riffle beetle	*Stenelmis calida moapa*
Butterflies & Moths (18 total)	
Carson Valley wood nymph	*Cercyonis pegala*
White River wood nymph	*Cercyonis pegala ssp.*
Spring Mountains acastus checkerspot	*Chlosyne acastus*
Baking Powder Flat blue	*Euphilotes battoides ssp.*
Spring Mountains dark blue	*Euphilotes enoptes ssp.*
Sand Mountain blue	*Euphilotes palliscens ssp.*
Mattoni's blue	*Euphilotes rita mattonii*
Mono checkerspot	*Euphydryas editha monoensis*
Spring Mountains comma skipper	*Hesperia comma ssp.*
Railroad Valley skipper	*Hesperia uncas ssp.*
MacNeill sooty wing skipper	*Hesperopsis gracielae*
Spring Mountains icarioides blue	*Icaricia icarioides*
Nevada viceroy	*Limenitis archippus lahontani*
Nevada admiral	*Limenitis weidemeyerii nevadae*

Table A-9 (continued)
SENSITIVE SPECIES LIST

Common Name	Scientific Name
Butterflies & Moths (continued)	
Steptoe Valley crescentspot	*Phyciodes pascoensis ssp.*
Denio sandhill skipper	*Polites sabuleti sinemaculata*
Grey's silverspot	*Speyeria atlantis greyi*
Carson Valley silverspot	*Speyeria nokomis ssp.*
Plants (98 total)	
rough angelica	*Angelica scabrida*
meadow pussytoes	*Antennaria arcuata*
Bodie Hills rockcress	*Arabis bodiensis*
Grouse Creek rockcress	*Arabis falcatoria*
Elko rockcress	*Arabis falcifructa*
Ophir rockcress	*Arabis ophira*
white bearpoppy; merriam b.	*Arctomecon merriami*
Eastwood milkweed	*Asclepias eastwoodiana*
Clokey milkvetch; equal m.	*Astragalus aequalis*
Sheep Mountain milkvetch; crescent m.	*Astragalus amphioxys var. musimonum*
Goose Creek milkvetch	*Astragalus anserinus*
Needle Mountains milkvetch; Peck Station m.	*Astragalus eurylobus*
black woollypod; Funeral milkvetch; black m.; Rhyolite m.	*Astragalus funereus*
Gilman milkvetch	*Astragalus gilmanii*
Inyo milkvetch	*Astragalus inyoensis*
Mokiak milkvetch	*Astragalus mokiacensis*
Lavin eggvetch	*Astragalus oophorus var. lavinii*
long-calyx eggvetch; pink e.	*Astragalus oophorus var. lonchocalyx*
Spring Mountain milkvetch	*Astragalus remotus*
Lamoille Canyon milkvetch; Ruby m.; Robbin's western m.	*Astragalus robbinsii var. occidentalis*
lonesome milkvetch; weak m.	*Astragalus solitarius*
Tiehm milkvetch	*Astragalus tiehmii*
Toquima milkvetch	*Astragalus toquimanus*
Currant milkvetch	*Astragalus uncialis*
dainty moonwort; crenulate m.	*Botrychium crenulatum*
alkali mariposa lily; striped m. l.	*Calochortus striatus*
Cane Spring evening-primrose	*Camissonia megalantha*
remote rabbitbrush; Pintwater r.	*Chrysothamnus eremobius*
Barren Valley collomia	*Collomia renacta*
Tecopa birdsbeak	*Cordylanthus tecopensis*
Schoolcraft catseye	*Cryptantha schoolcraftii*
White River catseye; Welsh c.	*Cryptantha welshii*

Table A-9 (continued)
SENSITIVE SPECIES LIST

Common Name	Scientific Name
Plants (continued)	
Bodie Hills draba; four-rib whitlowgrass	*Cusickiella quadricostata*
Goodrich biscuitroot; G. parsley	*Cymopterus goodrichii*
sanicle biscuitroot; Ripley b.	*Cymopterus ripleyi var. saniculoides*
Gold Butte moss	*Didymodon nevadensis*
silver leaf sunray	*Enceliopsis argophylla*
Nevada willowherb	*Epilobium nevadense*
broad fleabane	*Erigeron latus*
sheep fleabane	*Erigeron ovinus*
windloving buckwheat	*Eriogonum anemophilum*
Pahrump Valley buckwheat; forked b.	*Eriogonum bifurcatum*
golden buckwheat	*Eriogonum corymbosum var. aureum*
Crosby buckwheat	*Eriogonum crosbyae*
Clokey buckwheat	*Eriogonum heermannii var. clokeyi*
Lewis buckwheat	*Eriogonum lewisii*
prostrate buckwheat; Austin b.	*Eriogonum prociduum*
altered andesite buckwheat; Lobb b.	*Eriogonum robustum*
Tiehm buckwheat	*Eriogonum tiehmii*
Pahute green gentian; P. elkweed	*Frasera pahutensis*
Kingston bedstraw	*Galium hilendiae ssp. kingstonense*
smooth dwarf greasebush	*Glossopetalon pungens var. glabra*
dwarf greasebush	*Glossopetalon pungens var. pungens*
Lone Mountain tonestus	*Haplopappus graniticus*
Red Rock Canyon aster	*Ionactis caelestis*
Sierra Valley ivesia	*Ivesia aperta var. aperta*
rock purpusia	*Ivesia arizonica var. saxosa*
Jaeger ivesia	*Ivesia jaegeri*
Pine Nut Mountains ivesia; P.N.M.; mousetails	*Ivesia pityocharis*
grimy ivesia	*Ivesia rhypara var. rhypara*
Webber ivesia	*Ivesia webberi*
waxflower	*Jamesia tetrapetala*
Grimes vetchling	*Lathyrus grimesii*
Bruneau River prickly phlox; Owyhee p.p.	*Leptodactylon glabrum*
Clark parsley	*Lomatium graveolens var. clarkii*
Holmgren lupine	*Lupinus holmgrenanus*
smooth stickleaf	*Mentzelia mollis*
Packard stickleaf	*Mentzelia packardiae*
oryctes	*Oryctes nevadensis*
white-margined beardtongue	*Penstemon albomarginatus*

Table A-9 (continued)
SENSITIVE SPECIES LIST

Common Name	Scientific Name
Plants (continued)	
Nevada dune beardtongue	*Penstemon arenarius*
yellow twotone beardtongue	*Penstemon bicolor ssp. bicolor*
Tunne Springs beardtongue	*Penstemon concinnus*
Cordelia beardtongue	*Penstemon floribundus*
Death Valley beardtongue; Amargosa bush	*Penstemon fruticiformis ssp. amargosae penstemon*
Pahute Mesa beardtongue	*Penstemon pahutensis*
bashful beardtongue	*Penstemon pudicus*
Beatley scorpion plant	*Phacelia beatleyae*
least phacelia; dwarf phacelia	*Phacelia minutissima*
Mono phacelia	*Phacelia monoensis*
Parish phacelia; playa p.	*Phacelia parishii*
Washoe pine	*Pinus washoensis*
crowded combleaf	*Polyctenium fremontii var. confertum*
pygmy poreleaf	*Porophyllum pygmaeum*
Soldier Meadows cinquefoil; basalt cinquefoil	*Potentilla basaltica*
Cottam cinquefoil	*Potentilla cottamii*
Clokey mountain sage; C. purple sage	*Salvia dorrii var. clokeyi*
Blaine pincushion; B. fishhook cactus	*Sclerocactus blainei*
Nye pincushion	*Sclerocactus nyensis*
Schlesser pincushion; S. fishhook cactus	*Sclerocactus schlesseri*
Jan's catchfly; Nachlinger catchfly	*Silene nachlingerae*
Jones globemallow	*Sphaeralcea caespitosa*
Masonic Mountain jewelflower; M. M. twistflower	*Streptanthus oliganthus*
Tiehm stroganowia	*Stroganowia tiehmii*
Charleston grounddaisy	*Townsendia jonesii var. tumulosa*
Currant Summit clover	*Trifolium andinum var. podocephalum*
Leiberg clover	*Trifolium leibergii*
rock violet	*Viola lithion*

SOURCE: *Instruction Memorandum No. NV-2002-045, "Update of Nevada Sensitive Species List."* United States Department of the Interior, Bureau of Land Management, Nevada State Office. Reno, Nevada. Dated: April 17, 2002.

- Vegetation at both sites is dominated by creosote bush *(Larrea tridentata)* and shadscale *(Atriplex confertifolia).* Silver cholla cactus *(Opuntia echinocarpa)* occur in the area in low numbers.
- The desert tortoise *(Gopherus agassizii)* occupies a wide variety of desert habitats across its range. The Mojave desert tortoise is associated with creosote bush-blackbrush, creosote bush-Joshua tree, and shadscale vegetative types. Thirteen tortoise burrows were encountered in the project area during the field inventory. Ten of these are in close association and the remaining three are also closely associated. All of these burrows were constructed in soft soils deposited below the site, and seven of them showed evidence of recent activity. One adult male tortoise was observed basking outside one of the burrows. Mojave desert tortoise densities east of the project area have been determined at medium density (45-80 tortoises per square mile).
- The gila monster *(Heloderma suspectum),* ranges from southwestern Utah in the United States to northern Sinoloa in Mexico, and from southeastern California to western New Mexico. Although the project area is within the range of the Gila monster, no individuals were observed during the biological survey. It is unlikely that Gila monsters inhabit the site as these reptiles typically prefer very rocky environments.
- The chuckwalla *(Sauromalus obesus)*, occurs in rocky desert areas in Nevada. It is unlikely that chuckwalla occurs in the general vicinity of the project area as this habitat is probably not suitable for the species.
- The western burrowing owl *(Athene cunicularia hypugea)* is a USFWS candidate species for protection under the Endangered Species Act (ESA). Background data did give an indication that this species may occur in the project area and it is well documented that burrowing owls use tortoise burrows for nesting. While tortoise burrows were discovered in the project area, no burrowing owls were observed.
- No other species, or habitat to support those species, that are listed, candidate, or are species of concern were discovered in the two-site project area.
- Based upon consultations with the BLM Las Vegas Field Office for information on the desert tortoise in the area it was determined that no Areas of Critical Environmental Concern, or areas that have been determined Critical Mojave desert tortoise habitat, were noted in or near the area.

The Pahrump Regional Planning District Master Plan refers to a "Wildlife Habitat Reserve" to be established for wildlife, its habitat and sensitive resources, including open space and some low-impact recreational uses such as trails. Two large areas are identified for this purpose adjacent to the proposed Airport site. Based on conversations with Nye County administrators, there is also an effort to establish two habitat conservation areas – one specifically for the desert tortoise and the second for multiple species. Since these typically take a number of years to establish, it is not clear at this time how they will interact with the proposed construction of the Airport, however, additional information would be developed in the Environmental Assessment.

Nye County has received grants for the preparation and NEPA processing of two habitat conservation plans (HCP). The first of these is specific to the Desert Tortoise in the Pahrump Valley and the second is a multi-species plan for southern Nye County covering an area up to just north of Beatty (approximately 65 miles from Pahrump). The multi-species plan will include the Pahrump Valley Buckwheat. A draft of both HCPs is expected in July 2006 and processing of these plans would proceed when the NEPA documentation is completed. The County is optimistic that the plans can be approved by the end of 2006. When approved, Nye County will administer the plan as part of its overall development process. At present it is contemplated that an HCP permit will cost $250 per disturbed acre. No advance relocation of species would be required under the current provisions of these HCP's.

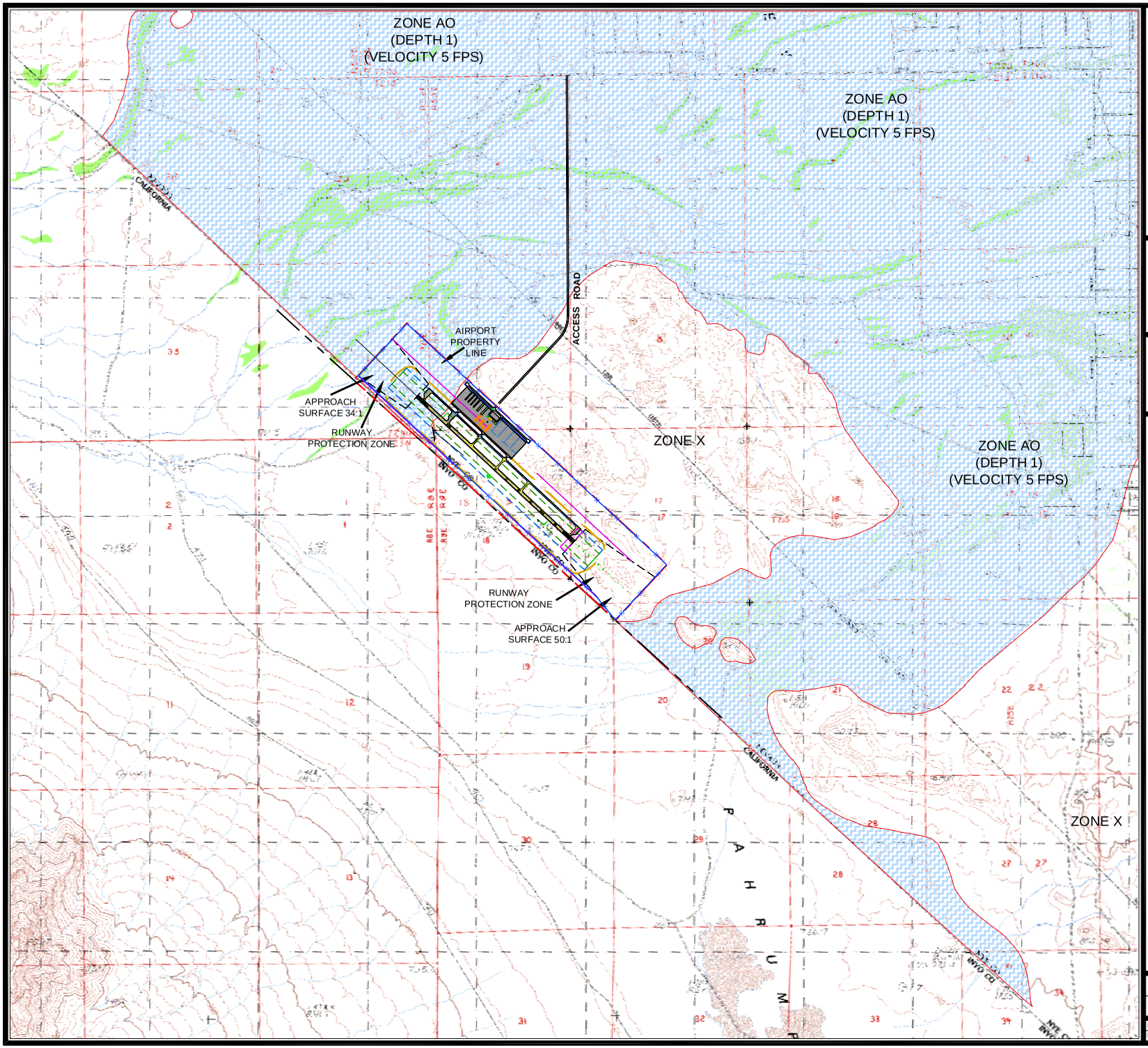
A.2.10 Floodplains and Drainage

Executive Order 11988 directs Federal agencies to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains. FAA's analysis of floodplain impacts seeks to determine if the proposed Airport encroaches upon a floodplain and whether or not that encroachment would be significant. A significant encroachment is one that may have a high probability of loss of human life, create substantial encroachment costs or damage, or cause adverse impacts on natural and beneficial floodplain values.

The National Flood Insurance Program (NFIP), managed by the Federal Emergency Management Agency (FEMA), requires FEMA to identify and map the Nation's flood-prone areas and to establish flood-risk zones in such areas. The national standard used to assess and manage the flood risk is the flood having a one percent chance of being equaled or exceeded in magnitude in any given year (also referred to as the 100-year or "Base Flood"). Contrary to popular belief, it is not a flood occurring once every 100 years. FEMA publishes this information as Flood Insurance Rate Maps (FIRM) which identifies the 100-year floodplain and other Special Flood Hazard Areas (SFHA).

Figure A-5 provides an illustration of the flood hazard areas surrounding the proposed new Pahrump Valley Airport site. References for this map are "Nye County, Nevada, Community Panel Number 320018-4430C" dated September 28, 1990. The comparable map for Inyo County, California is "Inyo County, California, Community Panel Number 060073-2150B". These maps define two flood zones: Zone "AO", which includes areas subject to flooding at depths between 1 and 3 feet, and Zone "X", which includes areas outside the 500 year flood. The Airport is proposed to be sited almost wholly within Zone X.

Although annual precipitation in Pahrump is limited, (see discussion under Climate, Topic A.2.1.1), landforms such as the Spring Mountains, can produce a large amount of stormwater runoff during rain events. Rainfall in the mountains can exceed 20 inches annually



PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE

PAHRUMP
NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

FLOOD HAZARD AREAS

LEGEND	
	"AO" FLOOD ZONE (FLOOD DEPTH 1 TO 3 FEET)
	"X UNSHADED" FLOOD ZONE AREAS OUTSIDE OF 500 YEAR FLOOD

SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY

TRUE NORTH

MAGNETIC NORTH
13°06'E (2006)

0 2,000 4,000
1,000 3,000
GRAPHIC SCALE IN FEET

NOTE:

THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

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PAHRUMP VALLEY AIRPORT	FIGURE A-5
NYE COUNTY, NEVADA	
NAME: PVA-A5-Flood Hazard Areas.dwg	NO: 4470-01
DATE: 04-20-06	PLOT SCALE: 1"= 4,000'

compared to 4 inches or less on the Valley floor. As a consequence, the special flood hazard areas of Pahrump are prone to periodic inundation that results in loss of property and creates health and safety hazards.

There are nine identified watersheds in the area south of State Highway 372 where the proposed Airport is located and 11 watersheds in the area north of this road. Together there are about 500 square miles of drainage area. According to the Pahrump Regional Planning District draft report, *Drainage and Flood Control Capital Improvements Plan FY2006-2015,* the Pahrump Valley is currently devoid of flood and drainage improvements. The vast majority of small dry creeks traversing the valley have not been preserved as development has progressed. These small creeks, which could have conveyed storm flows ranging from 25 to 50 cubic feet per second, are now blocked and cannot be upgraded, improved or expanded. The runoff from Wheeler Wash appears to be the most significant factor influencing the "AO" zone designation in the vicinity of the proposed Airport site as illustrated on Figure A-5.

During February 2005, flooding caused considerable damage to county roads and on March 2, 2005 the Nye County Commissioners voted to move forward to obtain rights-of-way in the entire Spring Mountain watershed on Pahrump's east side from the Bureau of Land Management for future construction of diversionary dikes to mitigate future flood damage. The still-tentative plan, not officially sanctioned by the Nye County Board of County Commissioners, calls for progressively dealing with 1-, 2-, 25- and 100-year floods in the Pahrump Valley. The near term improvements call for a series of nine small dams in upper Wheeler Wash to hold back the most destructive channel runoff affecting businesses in central Pahrump and homes along Winery Road (east of State Highway 160).

The County is also working with the U.S. Army Corps of Engineers (USACOE) to provide a more permanent solution to Pahrump's runoff problems in the Wheeler Wash area. The proposed project would construct a 2.0 mile long retention dam (levee) to retain a portion of the 97.2 square mile Wheeler Wash watershed runoff which exceeds 18,900 cubic feet per second (cfs) during the 100-year event. The project is estimated to cost $34-million with Nye County sharing 35 percent, or approximately $11.9 million and the USACOE providing the other 65 percent. This project is not expected to begin construction for another five to seven years.

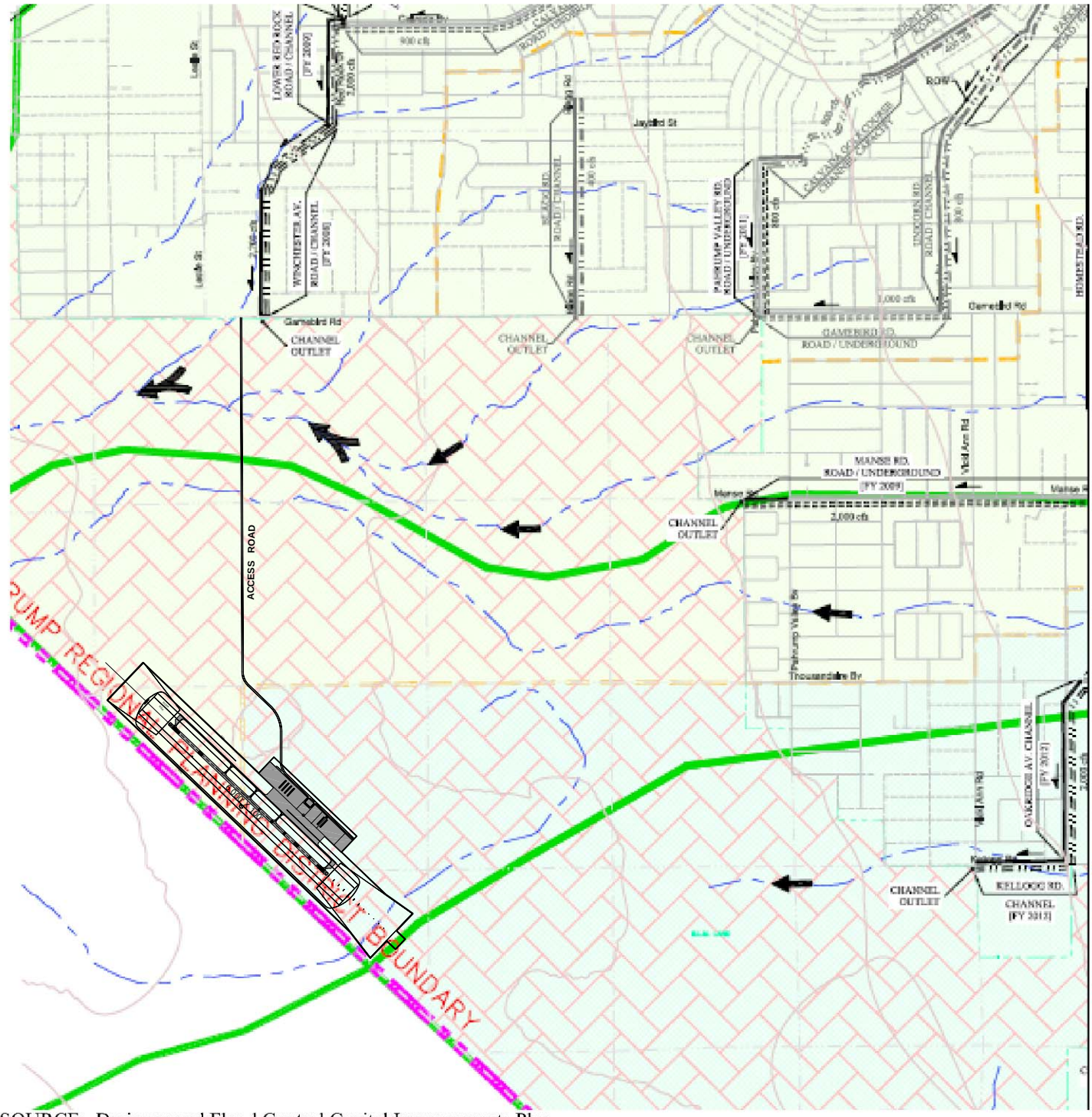
Other specific flood control projects with their accompanying estimated costs are identified in Table A-10. Several of these projects are located in the general vicinity of the proposed Airport site as illustrated on Figure A-6. The effects of these improvements on the Airport site are currently unknown and need further investigation. A preliminary layout of the airport which serves as the basis for determining many airport impacts, will include a preliminary drainage plan so that the affects of airport drainage on the existing and proposed flood control conditions and projects can be estimated.

Table A-10

FLOOD CONTROL IMPROVEMENT PROJECTS
PAHRUMP REGIONAL PLANNING DISTRICT

Improvement	Costs (in millions)
Wheeler Wash levee	$11.90
Winery Road channel and basin	$2.07
Winchester Avenue road and channel	$3.25
Lower Redrock road and channel	$1.83
Upper Redrock channel	$1.20
Lower Warren Street-north-valley channel	$5.83
Upper Warren Street-north-valley channel	$3.14
Manse Road channel	$5.29
Pahrump Valley Boulevard underground storm drain	$2.52
Carpenter Canyon basin	$0.17
Kellogg Road and channel	$1.29
Oakridge Avenue channel	$2.65
Homestead Road channel	$4.80
Thousandaire Boulevard channel	$5.93
Fairgrounds basin and collection system	$1.52

SOURCE: *Drainage and Flood Control Capital Improvements Plan FY 2006-2015* (Draft Revised August 17, 2005). Pahrump Regional Planning District. Prepared for Nye County Planning by Tri-Core Engineering.



SOURCE: Drainage and Flood Control Capital Improvements Plan FY 2006-2015 (Draft Revised August 17, 2005). Pahrump Regional Planning District. Prepared for Nye County Planning by Tri-Core Engineering.

PAHRUMP VALLEY AIRPORT MASTER PLAN

TRUE NORTH
MAGNETIC NORTH 13°08'E(2008)
0 5 10 20
GRAPHIC SCALE IN MILES

NOTE: THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

FLOOD CONTROL IMPROVEMENTS IN THE VICINITY OF PAHRUMP

ARIES CONSULTANTS LTD.

PAHRUMP VALLEY AIRPORT
NYE COUNTY, NEVADA

FIGURE A-6

NAME: PVA-A6-Flood Control Improvements.dwg NO: 4470-2
DATE: 04-20-06 PLOT SCALE: NOT TO SCALE

A.2.11 Ground Transportation

The Town of Pahrump is served by State Highway 160, which traverses the area in an east-west direction and State Highway 372 which provides access to California to the south. State Highway 160 runs from Interstate Highway 15 south of Las Vegas westward through Pahrump to U.S. Highway 95 about 17 miles east of the Town of Amargosa Valley (unincorporated). State Highway 372 is renumbered as California State Highway 178 after crossing the Stateline. This road provides access to the Shoshone- Tecopa area of California which has hot springs that support several resorts and campgrounds and leads to the eastern gateway to Death Valley National Park.

The Master Plan for the Pahrump Regional Planning District identifies the existing and future road system in the vicinity of the proposed Airport. Presently, the Site is served by Gamebird Road on the north and Pahrump Valley Boulevard on the east. Both function as arterial roads. Gamebird Road extends eastward to State Highway 160 and Pahrump Valley Boulevard provides access northward to State Highway 372. Blagg Road, a collector level road located to the west of Pahrump Valley Boulevard also provides a connection to State Highway 372. All three of these roads provide two travel lanes with stop sign controlled intersections.

The Pahrump Regional Planning District Master Plan Update proposes development of an industrial and business commercial center adjacent to the Airport (see Figure A-1 presented earlier). To serve this development, including the proposed Airport, a new arterial highway (part of a beltway) is proposed by extending Warren Street to the south then angling through the proposed Airport site parallel to the Stateline and connecting to Kellogg Road, an east-west road southeast of the Airport site. This proposed road is also identified on Figure A-1, presented earlier. Two additional arterial streets, one a westward extension of Thousandaire Boulevard and the other a southward extension of Winchester Avenue would connect to the new beltway road.

Total vehicle trips at the new Airport are expected to be 100 trips per day in 2010 increasing to 220 trips per day in 2025 as shown in the summary table below. This forecast of daily trips is based upon the Institute of Transportation Engineers publication *Trip Generation*. (See discussion in Section 2.7 of the Airport Master Plan.)

Year	AADT
2010	100
2015	150
2020	190
2025	220

SOURCE: Aries Consultants Ltd.

The analysis of ground transportation impacts will seek to determine if the proposed Airport activities create more traffic than is currently planned for in the proposed street system. The analysis will also need to consider the influence of the Town's proposed industrial-commercial center adjacent to the Airport which is considered a secondary or induced development because it would not likely be placed in that location without the presence of the Airport.

A.2.12 Hazardous Materials, Pollution Prevention, and Solid Waste

This topic explores activities that pose a hazard to the safe use and operation of an airport. Airports are places that require the handling and use of hazardous substances including fuels and oils. Regulations have been established for the safe storage and use of these materials, once an airport is operational. However, the emphasis here is on making sure that no hazardous materials have contaminated the site prior to the start-up of Airport operations. In order to determine the likelihood of the site to be contaminated with hazardous materials a Phase I Environmental Due Diligence Audit (EDDA) will need to be conducted. The EDDA audit examines any structures, bury pits, drums and tanks, onsite wastewater disposal or drinking water systems, and solid waste sites. There is also a visual observation of adjacent properties to determine if any surface conditions indicate possible contamination originating from adjoining properties or highway rights-of-way. The results of that audit would be included in the Environmental Assessment.

Solid waste is an airport related issue from two perspectives. The first perspective has to do with the airport's creation of solid and hazardous waste and the proper disposal of this material at appropriate disposal sites. The second perspective regarding solid waste is the location of a proposed airport relative to existing or planned solid waste landfills because the land fills attract birds and, if located in close proximity to an airport, can significantly contribute to aircraft bird-strike accidents. The Pahrump Valley Landfill is located east of Highway 160 at 1631 East Mesquite Avenue approximately 12 miles from the proposed Airport site. The landfill is a Class-I facility that takes in around 178 tons per day of solid waste from residential, commercial, and approved industrial sites. The landfill is operated by Nye County and the Town of Pahrump franchises collection of solid waste to a private vendor who charges $25 per residential unit for three months of service. In addition, there is currently a fee of $30 per parcel that supports the landfill. This landfill is nearing capacity but currently planned recycling efforts, waste diversion, and use of alternate cover are expected to extend the life of the landfill to 2010.

Beyond 2010 it is not clear what landfill will serve the Pahrump Valley. Nye County is in the process to identify a suitable location for a regional landfill with adequate capacity to serve the southern communities for 50 to 75 years. The Nye County Public Works Department has tentatively identified a site located north of Lathrop Wells near the Nevada Test Site (45 miles from Pahrump), but subsequent cost analysis suggest that transportation and transfer facility costs may be prohibitive. The County is continuing to evaluate alternate

sites, including a site north of the Town of Pahrump referred to as the Last Chance Basin, a 1,280-acre site at Johnnie. Either landfill site is at a sufficient distance from the proposed Airport site to avoid any conflicts over separation distances between the landfill and the new Airport in accordance with FAA Advisory Circulars (AC) 150/5200-34A, *Construction or Establishment of Landfills Near Public Airports* and AC 150/5200-33, *Hazardous Wildlife Attractants on or near Airports*. The Advisory Circulars recommends a minimum separation distance of five statute miles to avoid bird-strike hazards that might occur when birds are attracted to the landfill.

Hazardous materials in the form of glues, fuels and other adhesives or coatings are likely to be used during construction of the proposed Airport. Proper handling and disposal of these materials is expected to be discussed as part of the Construction Impacts topic (see discussion under Section A.2.5).

A.2.13 Historical, Architectural, Archeological, and Cultural Resources

Two basic laws provide context for this discussion. The first law is the National Historic Preservation Act of 1966, as amended, which established the Advisory Council on Historic Preservation to coordinate federal historic preservation matters. The second law is the Archeological and Historic Preservation Act of 1974, which provides for the survey, recovery, and preservation of significant scientific, pre-historical, historical, archeological, or paleontological data.

Information for this discussion came from the web site of the National Register of Historic Places operated by the National Park Service and a Class III cultural resource inventory of two proposed anemometer sites and associated access routes conducted during September 2004 within the proposed Airport site. This survey was accomplished by Knight & Leavitt Associates, Inc. as reported in BLM Report Number 5-2505.

Previous research shows that humans have lived in Southern Nevada for at least the last 13,000 years. These occupations are today represented in the cultural artifacts left behind. The following summarizes the cultural periods and artifacts.

- PaleoIndian/Tule Springs Period (13,000-10,000 years before the present - B.P.) - The PaleoIndian/Tule Springs period is the big game hunting period of North American prehistory. Hallmarks of the period include fluted Clovis and/or Folsom points, some of which have been found in Clark County.
- Lake Mojave Period (10,000-7000 years B.P.) - Representing the terminal portion of the PaleoIndian era throughout the Great Basin and eastern Mojave Desert, the Lake Mojave Period was a time of increasing aridity and decreasing rainfall, leading to the eventual extinction of the Pleistocene megafauna. Material culture of the period generally consists of small sites on the terraces of Pleistocene lakes or along extinct or

reduced watercourses. Sites attributed to the Lake Mojave period have been found around playa and dry lake beds to the west of the current project area in Death Valley.

- Pinto-Gypsum Period (7000-1500 years B.P.) - Generally considered the Desert Culture or Archaic period of Great Basin Prehistory, the Pinto-Gypsum Period is defined by a lifestyle dependent on the intensive exploitation of wild fauna and flora using generalized hunting and gathering tools and methods. During the period there was an increased reliance on seeds, nuts, berries, and other hard to process foods as evidenced by the presence of milling stones on many Pinto-Gypsum sites. Diagnostic artifacts for the period are the Humboldt, Pinto, and Gypsum series of points, each of which has temporal overlaps with the others. There are Archaic sites in the Spring Mountains to the east of the study area and in the Bird Springs Range to the south.
- Virgin Anasazi /Saratoga Springs (Patayan) Period (2000-850 year B.P.) - The Patayan period marks the appearance of the Virgin Anasazi in the Southern Nevada Region. The cultural pattern was similar to Anasazi groups in Arizona. Living along the Muddy and Virgin River Valleys, the Anasazi employed pithouse architecture and used limited horticulture. They also hunted and gathered, although agriculture eventually became the dominant mode of subsistence. Sites attributed to the Patayan period are located in Ash Meadows, and in the Las Vegas Valley north and east of the study area.
- Shoshonean Period (850-100 years B.P.) - Archaeologically, the Paiute become visible in the cultural record about 850 years ago. The Paiute material assemblage was generally simple, oriented toward food procurement rather than production. They employed Elko points or desert side-notched (DSN) points with juniper wood bows; they created rabbit snares and nets and wooden crooks for killing small game. The Paiute had a generalized stone tool kit but specific perishable materials including yucca cord headbands and sandals as well as woven baskets that they used as headgear or storage containers. Paiute ceramic types include brownwares, plainwares and corrugated sherds. Site types include rockshelters, open camps, brush wickiups, and roasting (mescal) pits. Many anthropologists subdivide the Paiutes into "bands" based on geographical location. Subdivisions included the Chemehuevi, Las Vegas, Moapa, Pahranagat, Cedar and Beaver Bands to name a few.

The proposed Airport site falls within the original territory of the Las Vegas Band of the Southern Paiute which included all of present day Las Vegas, Pahrump and a small portion of southeastern California. This territory incorporated three villages: one near Potosi Spring, one near Kingston Spring, and one within the Ivanpah Valley. The Las Vegas Band differed from other Paiute groups in that it acquired traits from the Mohave people (neighbors to the west in eastern California), including vocabulary, housing structures, and farming techniques. Specific technologies borrowed by the Las Vegas Band consisted of squared

metates, paddle and anvil pottery making, and hair dye. Like the Mohave people, the Las Vegas and, by extension, Pahrump Paiute populations actively traded outside the region.

After contact with Europeans and the expansion of European territory (the Spanish through Mexico in the 17th and 18th centuries and the westward expansion of the United States in the 19th century), the Paiutes were eventually assigned nine reservations within southern Nevada, including the Las Vegas, Moapa, Shivwits and Kaibab Reservations. These reservations were either too small or had too many people living on them or both. None of the reservations had any raw materials (i.e. timber, minerals) that could be exploited. Many Paiutes remained in the southern Nevada area but did not live on the designated land; instead they lived near the white settlers who had taken over the better springs and land. The two cultures became enmeshed, towns were created and grew. However, the Paiutes have retained their distinctive culture.

Prior to the Treaty of Guadalupe Hidalgo, which ended the Mexican War in 1848, the Old Spanish Trail crossed the Pahrump Valley. The Old Spanish Trail is actually a collection of trails that were used between 1829 and the coming of the railroads. The early trail linked Santa Fe, New Mexico and Los Angeles, California fulfilling a dream of first Spain, and later Mexico, to find an all-weather trade route between these outposts. Traders, explorers and emigrants began to use this route and, in 1844, John Charles Fremont gave it a name - the Old Spanish Trail. After 1848, the Mormons needed a reliable route between Utah and Southern California so they used the well blazed, proven corridor of the Old Spanish Trail as a guide. The tracks of their wagons are still visible in many places across Southern Nevada and southeastern California. Most of the trail in the Pahrump Valley is on land managed by the BLM. The U.S. Congress designated the Old Spanish Trail a part of the National Historic Trail System on December 4, 2002.

The closest 19th century cultural feature to the proposed Airport site is Manse, which is eight miles to the east. The settlement of Manse dates to the late 1870s and not only was it one of a number of ranches in Pahrump and Amargosa, it was also a ranch and stopover on the wagon road from Ivanpah to Amargosa. From the 1870s, until the development of the modern town of Pahrump, Manse remained a principal settlement. As discussed in Section A.2.7, Farmland and Soil, prior to World War II the larger ranches around Pahrump grew alfalfa and produced livestock. Between the 1950s and 1970s cotton was a principal crop in the Pahrump area but the price of cotton did not cover the cost of production in this area and cotton farming ended. The more recent emergence of the Town of Pahrump is generally attributable to the growth of Las Vegas since the early 1990s.

A search of the National Register of Historic Places operated by the National Park Service identified 52 buildings within Nye County. Only 5 of the listed structures were outside Tonopah and none were located in or near Pahrump. A search of the Nevada State Register of Historic Places, operated by the State Historic Preservation Office, Department of Cultural Affairs produced a much smaller listing with no references to Pahrump.

A.2.14 Light Emissions and Visual Impacts

The proposed Airport will have certain lighting requirements as directed by FAA standards and guidelines for safety and navigation. The Town's proposed industrial and commercial development adjacent to the proposed Airport will also require lighting. Collectively, the light emissions from the proposed site would change significantly as a result of this development. From FAA's perspective, lighting of the industrial-commercial area is as important as the Airport because improper lighting can obscure some of the navigation lighting posing a problem for pilots as well as being a source of annoyance to neighboring land owners. From BLM's perspective, all of this lighting has the potential to change the night sky at the edge of a wilderness area thereby changing the wilderness or sky-watching experience. These and other aspects of light emissions are to be addressed in the Environmental Assessment including mitigation measures and alternatives.

The Airport also brings with it air traffic which can be visible for miles because the activity is occurring at some altitude above the horizon. This visibility also has the potential to change the wilderness experience in adjoining wilderness areas and will be evaluated under that topic (see discussion under A.2.24).

In BLM's Las Vegas Resource Management Plan, which includes the proposed Airport site and surrounding area, the proposed Airport area is in Visual Resource Management Class IV, which means that authorized actions may involve major modification of the landscape's existing character - creating significant landscape alterations that would be obvious to casual viewers. Based upon this visual classification a formal visual assessment study using one of BLM's approved Visual Resource Management Systems does not appear to be necessary.

A.2.15 Native American Religious Concerns

Although the potential for Native American Religious sites or artifacts is high in southern Nevada, currently, there are no known Native American Religious concerns within the project area. The American Indian Religious Freedom Act of 1978 directs Federal agencies to identify the presence or absence of Native American Religious sites through Tribal consultation and coordination. The BLM and FAA are expected to conduct such consultation and coordination as part of the Environmental Assessment process. If Native American Religious sites or artifacts are documented in the project area, the BLM and FAA are expected to work with the appropriate Tribe(s) to avoid impact to the site(s) or artifact(s).

Native American tribes may be expected to include those from southern Nevada, western California, and possibly northern Arizona. Some of the tribes that may be represented include the following federally recognized tribes:

- Las Vegas Tribe of Paiute Indians
- Death Valley Timbi-Sha Shoshone Band of California
- Fort Mojave Indian Tribe of Arizona

A.2.16 Natural Resources and Energy Supply

The evaluation of natural resources and energy supply needs to address two perspectives: First is the perspective of BLM who is concerned with the possible loss of access to and/or loss of federal income derived from the extraction and sale of any minerals that may be found within the Airport site. In addressing this issue BLM has several alternative courses of action which are discussed further below. The second perspective is that of FAA who is concerned about environmentally compatible design and sustainability, including pollution prevention, waste minimization, and resource conservation. Of particular concern is whether the use of natural resources such as gravel, cement, water, and other natural materials used in the construction of the new Airport, as well as the use of resources to maintain the new Airport – electricity, water and others, depletes materials that are in short supply. Based on other growth occurring in the region, electricity and water are potential issues.

Historically, the Nye County economy was built on farming and mineral extraction. While many of the ore bodies have been mined out, mineral extraction remains an important sector of the Nye County economy with significant production of gold, silver, magnesite, and clay minerals along with industrial minerals including zeolites, cinders, and dimension stone. Based on this historical context, there may be untapped natural resources within the proposed new Airport sites. In BLM's Las Vegas Resource Management Plan, which includes the proposed Airport site and surrounding area, no mining plans and no mining notices were identified in the immediate vicinity of the Airport, although several were noted in the Pahrump Town area, generally to the north. Additionally, the Airport site was identified as having the following mineral potential:

- "Moderate" potential relative to oil and gas exploration
- "Moderate" potential relative to sodium
- "Moderate" potential relative to Mineral Material Sale Potential
- "Low mineral potential" with regard to locatable minerals

As part of its NEPA processing procedures, the BLM will create a Mineral Report and will use this and other information to determine an appropriate course of action regarding the potential mineral resources that might be found at this site. The range of options available to BLM includes approval of the conveyance without limitation, denial of the request for conveyance, or stipulation of various terms, covenants, conditions, and reservations including continuation of access under the various mineral leasing laws. At this point in the NEPA process BLM has not ruled out any of these options and the implications of each action on the future Airport will need to be evaluated in the Environmental Assessment.

The issue of rapid regional growth in southern Nevada and its impacts on natural resources was ranked as the number two issue in a survey of the divisions and special programs within the Nevada Department of Conservation and Natural Resources, the Department of Agriculture, and the Division of Minerals, collectively referred to as the State Technical Working Group. The following discussion documents the electrical and water issues.

A.2.16.1 Electricity

Electrical service to Pahrump is provided by Valley Electric Association (VEA). Valley Electric serves the corridor between the Nevada-California border and U.S. Highway 95 from about Interstate 15 to State Highway 266 in the vicinity of the community of Lida. Among their strategic plans for the period through 2007 is building the North Loop and the Pahrump Loop transmission lines. The Pahrump Loop includes an extension of the power line from an existing substation on Thousandaire Boulevard to a proposed substation on the west side of Pahrump to be located north of State Highway 372. The proposed line will have transmission towers that are up to 90 tall within a 100 foot utility corridor. The VEA is aware of the Airport proposal and has met with BLM and the Town of Pahrump to find a routing that avoids impacting the Airport. Recently the VEA filed a notice with BLM that it intends to construct this power line, but details of the filing regarding location of the line and towers were not yet available and are the subject of ongoing research. The supply of electric power to the Airport is not considered a critical issue.

A.2.16.2 Water

Of all the natural resources that affect the construction and operation of the future airport, water appears to be the most limiting resource. Long-term use of this resource has implications on other natural resources, including plants and animals. The following discussion of water related issues was primarily extracted from the *Nye County Water Resources Plan* (Buqo, Thomas S, August 2004) and Chapter 12, "Water Resource Plan", *Master Plan Update for the Pahrump Regional Planning District* (Nye County, 2003).

Water resources are divided into surface water and groundwater. Surface and groundwater in the Pahrump Valley is derived primarily from precipitation that falls over the Spring Mountains. Rain and snowmelt run off into the channels and into the fractures in the rock. Some of this water is consumed by the plants (evapotranspiration) and some infiltrates downward to recharge the water table. Most of the groundwater recharge occurs at elevations above 6,000 feet.

Surface Water. None of Nye County's 22 lakes and reservoirs are located in the Pahrump Valley. However, following the snowmelt in late spring there is usually a surge of discharge in the many streams and springs that drain the mountain areas. This surge is also referred to as rejected recharge as it represents the excess water that the rocks are not able to intake.

Wheeler Wash in the Pahrump Valley (discussed under the topic "Floodplains and Drainage", Section A.2.10) is affected by these natural processes.

It is important to note that the total quantity of surface water resources in Nye County is not known and the quantity of committed resources is not known with precision, according to the Nye County Water Resources Plan. However, virtually all of the surface water resources of Nye County have already been appropriated. In total, approximately 157,000 acre feet per year of surface water rights are outstanding in the basins that are wholly or in part located in Nye County and more than 80 percent of these are located in four individual basins including the Pahrump Valley. The table below provides a summary of surface water rights and applications for the Pahrump Valley expressed in acre-feet per year.

Basin	Applied for	Certificated	Permitted	Reserved	Vested	Ready for Action	Ready for Protest	Total Allocated	Total Demand
Pahrump Valley	--	3,723	14,812	--	3,135	0	--	21,670	21,670

SOURCE: Table 9, "Summary of Surface Water Rights and Applications In Basins of Nye County", *Nye County Water Resources Plan*. Prepared for Nye County Department of Natural Resources and Federal Facilities by Thomas S. Buqo. August 2004.

The key issues related to the surface water resources are the protection of spring and stream discharge rates, the management and use of riparian areas, and the maintenance of surface water quality. Water quality is discussed further in Section A.2.21. The effects of groundwater pumping on springs in Pahrump Valley have been well documented. Discharge at Bennett Spring was measured at 3,350 gallons per minute (7.5 cfs) in 1875, and more than 2,500 gallons per minute (5.6 cfs) in 1940, but was dry by the end of 1959. At Manse Spring discharge dropped from a historic high of 2,700 gallons per minute (6.09 cfs) in 1885 to 1,400 gallons per minute in 1940, and was dry during the summer months by 1975. In the late 1990s, Manse Spring began to flow again, reflecting wetter than normal climatic conditions and a decrease in agricultural groundwater withdrawals in the vicinity of the spring.

Groundwater. In addition to its surface water resources, Nye County has considerable groundwater resources. Groundwater occurs at various depths under the entire county and has been developed for municipal, agricultural, and mining supplies as well as for other purposes. In recent years, the demand on the groundwater resources has grown significantly, in part reflecting the growth of the various economic sectors of the County, and in part reflecting the interest in exporting water from Nye County through large-scale inter-basin transfers of water – primarily to serve the Las Vegas area. Because most of the surface water resources of Nye County have already been appropriated, the groundwater resources represent the only remaining source of water available to support the future well-being of the County.

In general, the structure of subsurface geologic units influences the storage and transmission of groundwater. The geologic units of Nye County can be divided into three major aquifer systems, the valley-fill aquifers, the volcanic aquifers, and the regional carbonate aquifer. The ability of these aquifer systems to store and transmit groundwater, and to yield water to wells, depends upon the type of aquifer and its characteristics. The U.S. Geological Survey, U.S. Department of the Interior, in cooperation with the State of Nevada, assessed 17 valleys in southern Nevada where carbonate rocks, such as limestone and dolomite, are known to underlie the basin-fill sedimentary deposits. Due to deformation of these carbonate rocks through geologic time the number of favorable sites are scarce. Consequently, the only significant source of groundwater in the Pahrump Valley is the valley-fill aquifer, basically the top several hundred feet of the valley floor and alluvial fan.

Existing groundwater allocations (vested rights plus permits plus certificated rights) exceed the perennial yield in six basins including the Pahrump Valley. Perennial yield is the amount of water that can safely be pumped without affecting the aquifer level. Withdrawals of groundwater in excess of the perennial yield will result in overdraft conditions in Pahrump. According to the Nye County Water Resources Plan, the published perennial yield of 19,000 acre feet per year and the published sustained yield of 26,000 acre feet per year are not adequate to provide the water necessary to support a full build-out of the community. Based upon these values, a shortfall of 54,000 to 61,000 acre feet per year is projected by the year 2050. The future consequences of overdraft of the valley-fill aquifer in Pahrump Valley will probably include the elimination of all discharge from springs, reductions in natural evapotranspiration by mesquites and phreatophytes, increased pumping and well drilling costs, water quality degradation, and, perhaps most importantly, subsidence of the land surface through the compaction of dewatered sediments. The Nye County Water Resources Plan projects a steady drop in the level of the aquifer water table of from one to three feet a year for the next 20 years.

Nye County has applications pending with the State Water Engineer to appropriate 34,000 acre feet of groundwater from basins North of Highway 95 (on several sites South of Yucca Mountain and the Nevada Test Site). Tentative plans call for sharing this water with the Amargosa Valley such that Pahrump would receive about 25,000 acre feet of that 34,000 acre feet distribution. The applications have been protested by Federal agencies and it will likely be several years before they are resolved. Preliminary cost estimates range up to $100 million. The County has also conceptually evaluated the use of Colorado River water, but the costs appear to be about five times as much.

While a typical general aviation airport is not a large water user and the ability to supply the proposed Airport with water is not an insurmountable issue, issues surrounding water use generally will need to be considered in the overall design of the airport. The Environmental Assessment will address any potential impacts of the water issues on the sustainability of the Airport and will also addressed any benefits accruing from an environmentally compatible design.

A.2.17 Noise

The issue of noise is primarily directed to aircraft noise and the influence such noise has on maintaining land use compatibility between the Airport and its neighbors. Issues associated with construction noise are to be addressed under the topic "Construction Impacts" (see discussion in Section A.2.5).

Noise is usually regarded as unwanted sound - sound that disturbs a normal routine and perhaps causes a feeling of annoyance. Although a considerable body of research had been accomplished on the issue of acceptable aircraft noise there are no absolute determinants of the noise level at which an individual person might be highly annoyed. At lower levels, aircraft noise can interfere with sleep, conversation, or relaxation. It also may disrupt school and work activities. At higher levels, aircraft noise may make outdoor activities impossible and may begin to raise health concerns with respect to hearing loss and stress-related problems. However, medical studies are inconclusive on a cause-and-effect relationship for non-auditory health concerns near airports. A more general conclusion is that noise may have an additive effect for some people with anxieties, ulcers, and tension illnesses. An acceptable level of noise depends greatly upon the context of the noise and the perspective of the listener - noise to one person may be music to another.

The aircraft noise impacts generated are an important step in determining the best alignment for the location of a new airport runway.

The proposed Airport location is currently vacant land that is situated between a developing urban area and a defined wilderness. The proposed site is sufficiently large enough so that the proposed aircraft traffic pattern avoids existing and proposed residential areas on the urban side. The Master Plan for the Pahrump Regional Planning District proposes to locate industrial and business commercial land uses in the immediate vicinity of the Airport and under current federal land use compatibility guidelines[1] these uses are generally compatible. However, the noise evaluation will need to demonstrate this compatibility. The compatibility issues on the wilderness side of the airport are quite different and can be measured both qualitatively and quantitatively. The qualitative evaluation of wilderness compatibility issues are to be addressed under the topic "Wilderness" (see discussion in Section A.2.24). The quantitative aspect of wilderness compatibility would be addressed through noise modeling.

The FAA standard for aircraft noise measurement is the Day-Night Average Noise Level (DNL), which provides a method of averaging single event noise levels over a typical 24-

[1] Federal Land Use Compatibility standards can be found in the Code of Federal Regulations at: Title 14-Aeronautics and Space, Part 150 – Airport Noise Compatibility Planning, Appendix A - Noise Exposure Maps, Part B - Noise Exposure Map Development, Section A150.101 - Noise contours and land usages, Table 1 - Land Use Compatibility With Yearly Day-Night Average Sound Levels.

hour day, applying penalties to noise events occurring during noise sensitive hours. By convention, a 10 dB penalty is added to sound levels occurring during nighttime hours between 10:00 p.m. and 7:00 a.m. the following morning. This 10 dB penalty means that one night time sound event is equivalent to 10 daytime events of the same level.

The Federal Aviation Administration's (FAA) Integrated Noise Model (INM) Version 6.1 (or later) will be used to prepare DNL noise exposure maps. These noise exposure maps will be based on forecast aircraft operations, as discussed in Section 2.5.3 and Table 2-4 of the Airport Master Plan Report. Appropriate assumptions regarding the aircraft mix, runway utilization, diurnal distribution, and aircraft flight tracks will be documented in the analysis. The analysis will document noise characteristics for the first year of operations, which is assumed to be 2010, and for 2025, the forecast year of the Airport Master Plan. The 2010 noise assessment, based upon 13,600 aircraft operations, will be used to determine the immediate community impacts associated with startup of the Airport. The initial startup noise exposure map would then in turn be used to understand the changing noise impacts of aircraft operations growth over the forecast period. The 2025 noise assessment would be based on 30,500 aircraft operations.

In order to provide a basis for evaluating impacts to adjacent wilderness areas a third noise exposure map would be based on a higher level of aircraft operations representing some percentage of the Airport's capacity to handle aircraft operations. This longer-range evaluation would also take into account the changing aircraft mix associated with corporate and industrial development in Pahrump, which would include a higher percentage of larger and heavier business jet aircraft, the extent of which would need to be determined as part of the analysis. In addition to providing the basis for evaluating aircraft noise affects on the wilderness, this set of noise exposure contours would also provide the Town of Pahrump and Nye County planners and decision makers a long-range view of potential aircraft noise affects so that future land use plans provide the necessary protections for both the airport and future community residents.

A.2.18 Public Recreation Areas, Refuges, Department of Transportation Act Section 4(f)

Section 303, Title 49 United States Code, formerly referred to as Section 4(f) of the Department of Transportation Act, provides that the Secretary of Transportation shall not approve any program or project which requires the use of any publicly owned land from a public park, recreational area, or wildlife and waterfowl refuge of national, state, or local significance or land of an historic site of national, state, or local significance unless there is no feasible and prudent alternative.

There are a number of recreational areas in the vicinity of Pahrump including the Mount Charleston Wilderness in the Spring Mountains, the Toiyabe National Forest, Ash Meadows National Wildlife Refuge, Kyle Canyon Camping Area, and Death Valley National Park in

California. However, only the Nopah Range Wilderness is located in close proximity to the proposed Airport site. No Wilderness lands are required for the Airport and any potential impacts to the Nopah Wilderness Area would be evaluated under the Wilderness topic (see discussion under Section A.2.24). The Pahrump Regional Planning District Master Plan refers to a "Wildlife Habitat Reserve" to be established for wildlife, its habitat and sensitive resources, including open space and some low-impact recreational uses such as trails. Two large areas are identified for this purpose adjacent to the proposed Airport site. The metes and bounds for this potential recreational area will be shaped from areas remaining after the Airport and adjacent commercial-industrial development are further defined. No other public park, recreational area, wildlife and waterfowl refuge of national, state, or local significance or land of an historic site of national, state, or local significance would be affected. Based on this finding there should be no Section 4(f) impacts.

A.2.19 Secondary (Induced) Impacts

Major development proposals often involve the potential for induced or secondary impacts on surrounding communities or neighborhoods. Examples include: shifts in patterns of population movement and growth; public service demands; and changes in business and economic activity to the extent influenced by the airport development. Such induced activity becomes significant when there are also significant impacts in other categories such as noise, land use, or direct social impacts. The Environmental Assessment intends to examine these various factors to determine if the induced activity is in fact a significant impact.

The proposed development of an industrial-commercial center adjacent to the Airport site is an example of an induced development, since it is unlikely that such development would be located here without the presence of the Airport. The community infrastructure improvements for sewer, water, roads, and other services that would be developed to support the Airport are also needed to support the proposed industrial-commercial center and would need to be sized accordingly.

A.2.20 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

Socioeconomic impacts in the context of this topic refer to the impacts created when homes and businesses are displaced in order to construct a given project. Since the lands proposed for the new Airport are currently vacant and no relocations are expected, this topic is not applicable.

The topic of Environmental Justice examines whether or not the proposed action creates a disproportionately high and adverse effect on minority and low-income populations. U.S. Census Bureau data is used to establish the demographic and

Socio-economic baseline. The 2000 Census data in Table A-11 identifies the racial characteristics for the Town of Pahrump as a whole together with similar characteristics for two census tract block groups adjacent to the proposed Airport site. Census Block Group 2 in Census Tract 9804.04 represents the area north of Gamebird Road, but west of Pahrump Valley Boulevard. Census Block Group 1 in Census Tract 9804.05 represents the area south of Gamebird Road but west of South Vicki Ann Road and includes the proposed Airport site. Generally, the racial makeup of each of the Census Block Groups closely matches that of the Town as a whole.

A 'low-income' person is defined as one whose median household income is at or below the U.S. Department of Health and Human Services (USDHHS) poverty guidelines. It should be noted that there are two slightly different versions of the federal poverty measure: poverty thresholds, and poverty guidelines. The poverty thresholds are the original version of the federal poverty measure updated annually by the Census Bureau and used for statistical purposes. All official poverty population figures are calculated using the poverty thresholds. The poverty guidelines are published annually in the Federal Register by USDHHS and represent a simplification of the poverty thresholds for use for administrative purposes - for instance, determining financial eligibility for certain federal programs. Table A-12 identifies the 2006 Poverty Guidelines for the 48 Contiguous States and the District of Columbia as well as 2005 Poverty Thresholds.

Table A-13 compares the income and poverty characteristics for the same two census tract block groups discussed earlier to the same characteristics for the Town of Pahrump as a whole. The differences regarding income are more pronounced between the Census Block Groups and the Town as a whole. Census Block Group 1 in Census Tract 9804.05 has a higher percentage of families and individual living below the poverty level. Whether this translates into a disproportionately high and adverse effect on low income persons depends on the specific impacts generated by the Airport. A further analysis of this potential affect will be addressed in the Environmental Assessment when all the impacts are considered collectively.

With regard to children's environmental health risks Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks", made it a priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Airport regulations, if they are followed, should prevent off-site contamination by fuels and other hazardous substances. Such pollution prevention measures are typically addressed under the topic "Hazardous Materials, Pollution Prevention, and Solid Waste", see Section A.2.12. The typical airport fencing provides a specific barrier to prevent children and others from playing on the runway and taxiways, or other places where safety might be compromised. These actions and others will be evaluated in the Environmental Assessment.

Table A-11

RACIAL COMPOSITION OF VICINITY POPULATION COMPARED TO THE TOWN OF PAHRUMP AS A WHOLE

Race	Census Block Group 2, Census Tract 9804.04		Census Block Group 1, Census Tract 9804.05		Town of Pahrump	
	Population	Percent	Population	Percent	Population	Percent
White	1,167	92.6%	2,050	91.7%	22,419	91.0%
Black or African American	25	2.0%	23	1.0%	321	1.3%
American Indian and Alaska Native	8	0.6%	37	1.7%	318	1.3%
Asian	22	1.7%	13	0.6%	210	0.9%
Native Hawaiian and Other Pacific Islander	1	0.1%	4	0.2%	92	0.4%
Some other race	13	1.0%	53	2.4%	560	2.3%
Two or more races	24	1.9%	56	2.5%	711	2.9%
Total Population	1,260	100.0%	2,236	100.0%	24,631	100.0%
Hispanic or Latino(of any race)	103	8.2%	262	11.7%	1,879	7.6%

Source: U.S. Census Bureau, 2000 Census of Population

Table A-12

POVERTY GUIDELINES AND THRESHOLDS

Size of family unit	2006 Poverty Guidelines [1]	2005 Poverty Thresholds
One Person	$9,800	$10,160
65 years and over	--	$ 9,367
Two Persons	$13,200	$13,078
65 years and over	--	$11,805
Three Persons	$16,600	$15,277
Four Persons	$20,000	$20,144
Five Persons	$23,400	$24,293
Six Persons	$26,800	$27,941
Seven Persons	$30,200	$32,150
Eight Persons	$33,600	$35,957

NOTES: 1) For family units with more than 8 members, add $3,400 for each additional member.

SOURCE: Poverty Guidelines - U.S. Department of Health and Human Services, *Federal Register*, January 24, 2006 (Volume 71, Number 15, pp. 3848-3849)

Poverty Thresholds - U.S. Department of Commerce, Bureau of the Census Internet Site, April 4, 2006

Table A-13

INCOME AND POVERTY COMPOSITION OF VICINITY POPULATION COMPARED TO THE TOWN OF PAHRUMP AS A WHOLE

	Census Block Group 2, Census Tract 9804.04		Census Block Group 1, Census Tract 9804.05		Town of Pahrump	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Household median income	$39,621	---	$31,250	---	$34,860	---
Family median income	$49,375	---	$43,306	---	$39,812	---
Per capita income	$27,640	---	$16,027	---	$17,708	---
Poverty - Individuals						
Number of persons below poverty level	16	1.3%	363	16.2%	2,641	10.7%
Age 18 to 64	0	0.0%	242	10.8%	1,457	5.9%
Age 65 and over	16	1.3%	21	0.9%	365	1.5%
Poverty - Families						
Number of families below poverty	0	0.0%	60	9.6%	524	7.3%
With children under 18 years	0	0.0%	28	4.5%	361	5.0%

SOURCE: U.S. Census Bureau, 2000 Census of Population

A.2.21 Water Quality

Based on information in the Nye County Water Resources Plan, the quality of Nye County's surface water is in compliance with the 1972 Clean Water Act; however, surface water quality is subject to impacts from human activities and natural causes. With respect to the groundwater, the quality ranges from suitable to marginally suitable with limited exceptions based on specific locations and proposed uses. The Master Plan Update for the Pahrump Regional Planning District indicates that at the present level of the water table, the overall quality of the groundwater in Pahrump is considered to be quite good. Since virtually all of the surface water resources of Nye County have already been appropriated, the Airport is expected to be served by groundwater resources.

However, as discussed in Section A.2.16.2 regarding water supplies, existing groundwater allocations exceed the perennial yield in six basins including the Pahrump Valley. Perennial yield is the amount of water that can safely be pumped without affecting the aquifer level. A shortfall of 54,000 to 61,000 acre feet per year is projected by the year 2050. Withdrawals of groundwater in excess of the perennial yield will result in overdraft conditions in Pahrump. This is expected to result in a steady drop in the level of the aquifer water table of from one to three feet a year for the next 20 years. That change in the level of water table could impact water quality due to an increase in dissolved minerals.

Another potential threat to ground water quality is from agricultural fertilizers and pesticides in irrigated areas. However, this threat is diminishing over time as agricultural land uses decline, particularly in the Pahrump Valley.

The more significant threat to water quality is likely to come from the proliferation of septic systems. Very few of the water supply systems in Nye County are publicly owned. Water resource planning is constrained by the presence of many private water supply systems. In Pahrump, for example, there are more than 20 public water supply systems but only the Nye County Complex system is publicly owned. The total number of domestic water wells in Nye County is not known but there are probably about 9,000 domestic wells throughout the County as a whole. In Pahrump alone, there are about 8,300 domestic wells and 600 to 700 new wells are drilled each year. It is estimated that there will be as many as 20,000 additional domestic water wells drilled in Pahrump Valley over the next 50 years (assuming that current trends continue and no basin-wide water supply system is developed). Assuming a one-to-one correspondence between the number of domestic wells and the number of household septic systems, then 20,000 new septic systems may ultimately be built in Pahrump Valley. In a number of areas, septic tank density per square mile already greatly exceeds State guidelines. Nye County is developing a sewer system master plan for Pahrump that the Airport would eventually be connected to.

The proposed Airport is expected to address its contributions to potential water quality degradation through permitting required under the National Pollutant Discharge Elimination

System (NPDES). NPDES permits will be required for construction activities and for day-to-day operation of the Airport. Both permits are supported by pollution prevention plans that identify the management practices and technology to be employed in reducing water quality impacts. The management practices can cut across a number of topical areas including waste management, soil erosion and sediment control, vegetative stabilization, material storage management, and vehicle management. The Environmental Assessment will include a discussion of the NPDES system and required pollution prevention plans.

A.2.22 Wetlands and Riparian Zones

Although there are no major rivers in Nye County, there are many streams that drain the upland areas. These streams derive their flow from three main sources: spring discharges, groundwater discharge along the stream channel, and snow melt. The discharge rates for most of these streams are seasonal with peak flows following the spring snow melt in the upland areas. The streams also support extensive riparian and wetland areas. According to Bureau of Land Management documents, there are at least 20 streams in Nye County that support more than 25 miles of riparian habitat.

There are no riparian or wetland zones within the proposed Airport site. However, an extensive web of shallow seasonal drainage channels or washes extends from east to west across the proposed Airport site. The general pattern of these washes are reflected in the pattern of honey mesquite growing on the site as seen on Figure A-4 presented earlier. Although not riparian in nature, the honey mesquite provides habitat for small animals and birds in these wash areas.

The washes within the proposed Airport site appear to be the longitudinal extensions of the Wheeler Wash drainage, located several miles to the east. The flood hazard areas map, presented earlier on Figure A-5 and discussed in Section A.2.10, suggests that these drainage channels may occasionally be inundated during the spring flows. The U.S. Army Corps of Engineers is proposing to place a dike across Wheeler Wash to control seasonal flooding, as discussed also in Section A.2.10, and this is expected to reduce the frequency of flow in these drainage channels. Since these drainage channels are not riparian or wetlands and flows in them may be affected by planned flood control measures, no impacts are expected under this topic.

A.2.23 Wild and Scenic Rivers

The Wild and Scenic Rivers Act, PL90-542 as amended, describes those river areas eligible for inclusion in a system afforded protection under the Act as free flowing and possessing "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values." The U. S. Department of the Interior maintains the National Rivers Inventory of designated and proposed river segments for inclusion in the National Wild and Scenic Rivers System.

A review of the National Park Service National Wild and Scenic Rivers System (http://www.nps.gov/rivers/) indicates there are no wild and/or scenic rivers in Nevada. The same system shows that there are also no designated "study rivers".

A.2.24 Wilderness

A wilderness is a natural preserve with outstanding opportunities for solitude and unconfined primitive experience. The wilderness is a place to enjoy where ecological, geological and other features of scientific, scenic, educational and historical value are protected and their character retained. The Wilderness Act of 1964 (Public Law 88-577) created the legal definition of wilderness in the United States and established the National Wilderness Preservation System including the initial federal lands set aside for wilderness uses. Today the Wilderness System comprises over 106 million acres involving federal lands administered by four agencies: Bureau of Land Management, U.S. Forest Service, National Park Service and the U.S. Fish and Wildlife Service. Most wilderness areas are in National Forests, but the National Park Service administers the largest amount of wilderness land – almost 34.9 million acres. The Bureau of Land Management, who manages most of the wilderness areas in the Pahrump vicinity, is responsible for 175 Wilderness Areas containing 7.2 million acres in 10 Western States.

Within the Wilderness Act legislation, wilderness is defined as follows:

> "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of underdeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which:
>
> **(**1**)** generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;
>
> **(**2**)** has outstanding opportunities for solitude or a primitive and unconfined type of recreation;
>
> (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and
>
> (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.
>
> (SOURCE: U.S. Code: Title 16, Chapter 23, Article 1131(c), "Wilderness" defined).

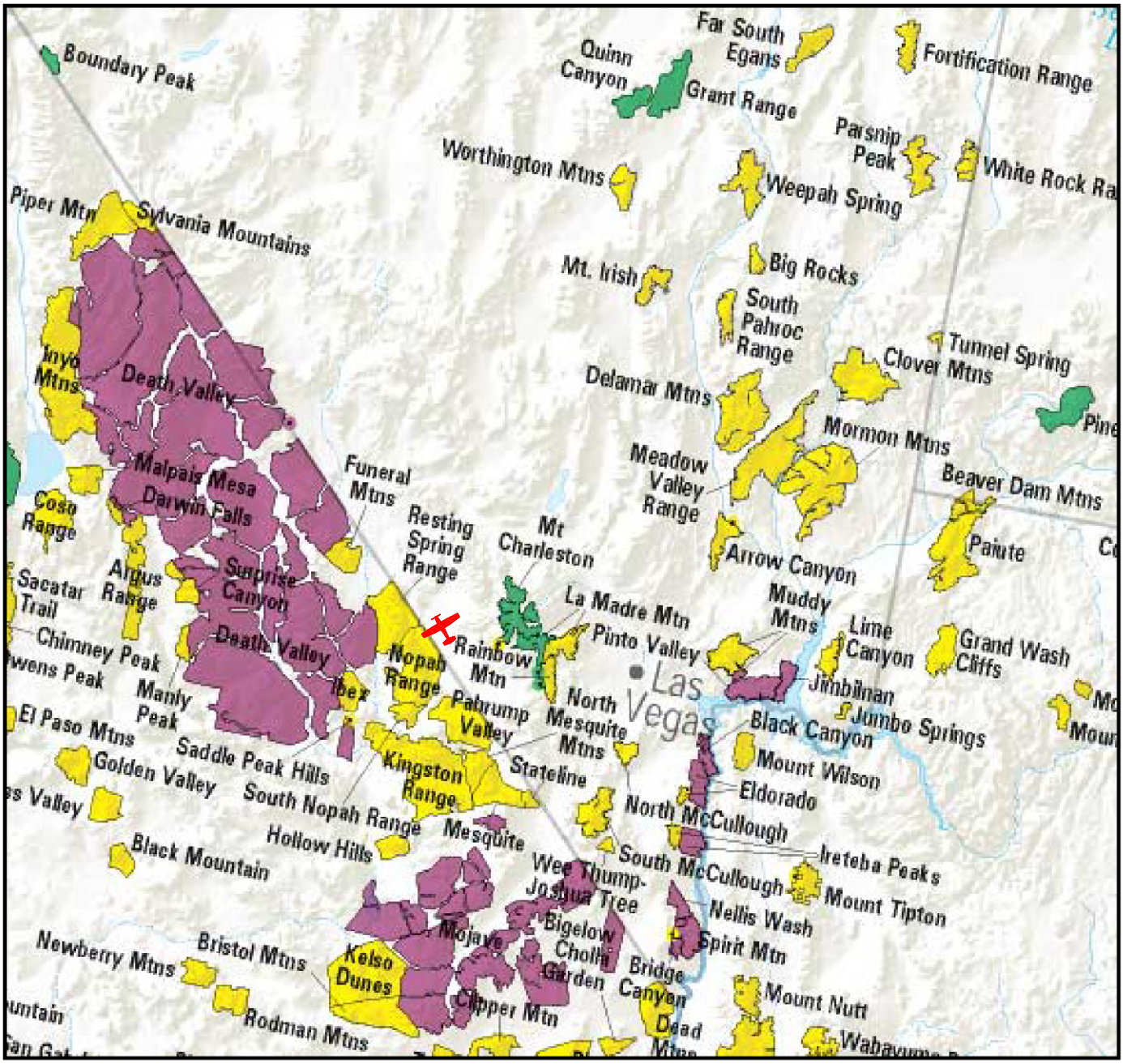
Wilderness areas are subject to specific management restrictions. Human activities are restricted to non-motorized recreation (such as hunting, fishing, horseback riding, etc.), and, as noted in the definition above, scientific research, and other non-invasive activities. In

general, the law prohibits logging, mining, roads, mechanized vehicles (including bicycles), and other forms of development. The wilderness designation protects the habitat of numerous wildlife species and serves as a biodiversity bank for many species of plants and animals. Wilderness is also a source of clean water.

Southern Nevada and Eastern California are particularly rich in designated wilderness areas, as shown on Figure A-7. Of specific interest in this baseline discussion are the designated wilderness areas within the vicinity of Pahrump, which are summarized in Table A-14. Table A-14 identifies three wilderness areas in Nevada and four in California, together with brief descriptions of vegetation and animal life found in each. Economic and population growth exert significant pressures on wilderness many of which are the same threats that other public lands face: overuse, fire suppression, invasive species, pollution, and lack of public awareness. The evaluation of potential impacts from the proposed Airport will need to consider the direct and cumulative affects of the Airport and associated aircraft on the characteristic values represented in wilderness (for example, solitude).

In addition to evaluating affects of the Airport on designated Wilderness Areas, the impacts evaluation also needs to examine potential affects to “wilderness study areas”. Wilderness Study Areas were established by Congress through passage of the Federal Land Policy and Management Act (FLPMA) in 1976. In the FLPMA, Congress provided that the Secretary of the Interior was to inventory "roadless areas of five thousand acres or more and roadless islands of the public lands" (U.S. Code Title 43, Chapter 35, Subchapter VI, Article 1782, Bureau of Land Management Wilderness Study). Congress also provided that the inventory was to be completed by October 21, 1991, fifteen years after passage of the FLPMA. The inventory was to include a determination of the suitability or nonsuitability of each such area as well as the results of mineral surveys conducted by the United States Geological Survey (USGS). Recommendations were to be made to the President and then Congress would act upon the President’s recommendations. The subsequent inventory completed by November 1980, identified 620 Wilderness Study Areas encompassing about 15.7 million acres of federal lands. Since 1980 Congress has reviewed some of these areas and has designated some as wilderness and released others for non-wilderness uses. Until Congress makes a final determination on a Wilderness Study Area, the status of these areas remain in limbo, but are managed by the Bureau of Land Management to preserve their suitability for designation as wilderness.

More than 5 million acres of the State of Nevada were originally set aside for study as potential wilderness. Of that original identification approximately 2 million acres have been set aside as wilderness. There are 14 current Wilderness Study Areas in Nye County. Many of these are located in the northeastern portion of the County and are not relevant to this investigation. Table A-15 identifies the two Wilderness Study Areas that may need to be considered for their closer proximity to the proposed Airport, specifically, the Mount Stirling and the Resting Springs Wilderness Study Areas. The Mount Stirling Wilderness Study Area



LEGEND: Bureau of Land Management — Pahrump Valley Airport Site

Fish & Wildlife Service

Forest Service

National Park Service

SOURCE: *The National Atlas of the United States of America®*, United States Department of the Interior

PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE · PAHRUMP · NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

TRUE NORTH — MAGNETIC NORTH 13°06'E(2006)

0 5 10 20

NOTE: GRAPHIC SCALE IN MILES

THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

DESIGNATED WILDERNESS AREAS

ARIES CONSULTANTS LTD.

PAHRUMP VALLEY AIRPORT	FIGURE A-7
NYE COUNTY, NEVADA	
NAME: PVA-A7-Wilderness Areas.dwg	NO: 4470-02
DATE: 04-20-06	PLOT SCALE: NOT TO SCALE

Table A-14

LISTING OF WILDERNESS AREAS AND ASSOCIATED RESOURCES
Vicinity of Proposed New Pahrump Valley Airport

Wilderness Name, Size and Management	Description	Vegetation	Wildlife
Wilderness Areas Located in Nevada			
La Madre Mountain Wilderness BLM: 27,879 acres USFS 19,301 acres Total: 47,180 acres	Created under PL 107-282, November 6, 2002. Elevations range from 9,425 feet on the crest of the Spring Mountains south of Griffith Peak to 3,900 feet on the lowest bajadas at the edge of Las Vegas. This wilderness area includes the entire La Madre Mountain Range, a rugged complex of gray carbonate ridges and towering vertical cliffs and lies between to the Mt. Charleston and Rainbow Mountain wilderness areas. Archaeological sites occur throughout the area, including rock art panels (pictographs and petroglyphs), agave roasting pits, rock shelters, camp sites, milling sites, and lithic and ceramic scatters. The Brownstone Canyon Archeological District (3,920 acres) is listed on the National Register of Historic Places.	The large range in elevation (6,000 feet) provides for a variety of plant communities, ranging from Mojave Desert Shrub at the lowest elevations, to Juniper-Pinyon woodlands at middle elevations, to subalpine communities of white fir and ponderosa pine at the highest elevations.	The diversity of elevations and vegetation types provides habitat for numerous species of mammals, including bighorn sheep, deer, mountain lion, bob cats, foxes, and a plethora of bat and rodent species. Reptiles and birds are equally diverse. The higher elevations provide nesting habitat for neotropical migrants[1]. Water is available in sandstone potholes and springs.

LISTING OF WILDERNESS AREAS AND ASSOCIATED RESOURCES

Wilderness Name, Size and Management	Description	Vegetation	Wildlife
Mt. Charleston Wilderness BLM: 2,142 acres USFS: 11,456 acres Total: 13,598 acres	Created under PL 107-282, November 6, 2002. The Mt. Charleston Wilderness includes the highest peak in southern Nevada, Mt. Charleston (11,918 feet), and all of the higher elevations in the Spring Mountains. Much of the land over about 7,000 feet elevation surrounding the peak is included in the wilderness area. These mountains are rugged, with towering carbonate cliffs, steep hillsides, and deep narrow canyons. The highest, wind-swept summit ridges are barren, but the lower ridges and slopes are cloaked in a forest of ancient bristlecone pine. There are six climate zones in the Spring Mountains: from bottom to top – Lower Sonoran, Upper Sonoran, Transition, Canadian (montane), Hudsonian (subalpine) and Arctic. Managed by the Bureau of Land Management and the U.S. Forest Service	The Lower Sonoran and Upper Sonoran both provide conditions suitable for creosote bush and Joshua trees, but the Lower Sonoran is drier and hotter than the Upper Sonoran. The lower Transition Zone provides conditions suitable for pinyon-juniper forests and sagebrush, while the upper Transition Zone provides conditions suitable for ponderosa pine, manzanita, and scrub oak. The Canadian (montane) Zone provides conditions suitable for Douglas fir, spruce trees, and aspen. The Hudsonian (subalpine) Zone provides conditions suitable for bristlecone pine (among the oldest living organisms in the world) and few other species. The wilderness area contains 18,000 acres of Bristlecone pine, the most extensive stand of these ancient trees in the intermountain region. The Arctic Zone provides conditions that are unsuitable for trees; this is above treeline where only low shrubs, grasses, and forbs can exist.	The diversity of elevations and vegetation types provides habitat for numerous species of mammals, including bighorn sheep, deer, mountain lion, bob cats, foxes, white-tailed antelope squirrel, jackrabbit, kit fox and a plethora of bat and rodent species. At higher elevations, others occur (for example, golden mantle ground squirrel). Reptiles and birds are equally diverse. The higher elevations provide nesting habitat for neotropical migrants[1]. Water is available in sandstone potholes and springs. Conditions are too harsh at the highest elevations for most species, but Rock Wrens, and Ravens can be found there.

LISTING OF WILDERNESS AREAS AND ASSOCIATED RESOURCES

Wilderness Name, Size and Management	Description	Vegetation	Wildlife
Rainbow Mountain Wilderness BLM: 20,311 acres USFS: 4,686 acres Total: 24,997 acres	Created under PL 107-282, November 6, 2002. The Rainbow Mountain wilderness area includes red and white sandstone cliffs, rugged canyons, and limestone peaks that are deeply incised by narrow, twisting and heavily vegetated canyons.. Elevations range from about 4,100 feet at the base of the escarpment to 7,070 feet at the summit of Wilson Mountain. managed by the Bureau of Land Management and the U.S. Forest Service	The large range in elevation (about 3,500 feet) provides for a variety of life zones, ranging from middle-elevation Mojave Desert shrub at the lowest elevations to Juniper-Pinyon woodlands with a bit of ponderosa pine at higher elevations. In the drainages, where cold air spills down the canyons at night, ponderosa pine and other species more typical of the higher elevations can be found growing adjacent to creosote and other species typical of the desert flats. In the mouths of the canyons, species such as manzanita, silk tassel, bitterbrush, apache plume, scrub oak, and wild rose are common.	The diversity of elevations and vegetation types provides habitat for numerous species of mammals, including bighorn sheep, deer, mountain lion, bob cats, coyote, foxes, and a plethora of bat and rodent species (for example, rock squirrel, white-tailed antelope squirrel, Merriam's Kangaroo Rat). Reptiles and birds are equally diverse.
Wilderness Areas Located in California			
Nopah Range Wilderness BLM: 110,860 acres	Created by PL 103-433, October 31, 1994. Elevations range from about 1,800 feet to the 6,395-foot summit of Nopah Peak in the northern section. The area includes remnants of the historic Old Traction Road.	Creosote bush scrub and allscale scrub plant communities characterize the lower slopes; blackbush scrub and pinyon-juniper woodland typify upper elevations.	Animal life is typical of the Mojave Desert, including raptors (prairie falcons, red-tailed hawks, and golden eagles), desert tortoise (a threatened species), and migrating desert bighorn sheep.

LISTING OF WILDERNESS AREAS AND ASSOCIATED RESOURCES

Wilderness Name, Size and Management	Description	Vegetation	Wildlife
Pahrump Valley Wilderness BLM: 72,528 acres	Created by PL 103-433, October 31, 1994. Elevations range from 2,720 feet on a valley floor to 4,569 feet on a mountain summit. The Pahrump Valley in the north, the Mesquite Valley in the southeast, and the California Valley in the west are joined to create this Wilderness. Alluvial slopes in all three valleys ascend gradually southward into the northern Kingston Range, which also lies within the Wilderness.	Natural communities are primarily creosote bush series. Other less common communities include creosote bush - white bursage series, Joshua tree series, Indian rice grass series, greasewood series, mesquite series, and mixed saltbush series on the basin floor. No special status plants occur in this area.	Animals include wild burros (which are protected here), desert bighorn sheep and golden eagles. The valley has fair quality desert tortoise (endangered species) habitat and includes some of approximately 172,000 acres of BLM Category III desert tortoise habitat. The desert tortoise area is not included as USFWS critical habitat.

NOTES: 1) Birds that breed in Canada or the United States, but winter in Mexico, Central, or South America, are known as neotropical migratory birds.

SOURCES: U.S. Department of the Interior, Bureau of Land Management, California Desert District Office. *Proposed Northern and Eastern Mojave Desert Management Plan (NEMO), Federal Environmental Impact Statement*. July 2002.

Web site: http://www.wilderness.net/ A partnership project of the Wilderness Institute, University of Montana, College of Forestry and Conservation, the Arthur Carhart National Wilderness Training Center, and the Aldo Leopold Wilderness Research Institute.

Web site: http://www.birdandhike.com/Wilderness/Wild_index.htm "Wilderness Areas Around Las Vegas", A guide for visitors by Jim Boone.

Table A-15

LISTING OF WILDERNESS STUDY AREAS IN SOUTHERN NYE COUNTY

Wilderness Study Area Name [1]	BLM Area	Acres Suitable [2]	Acres Non-suitable [2]
Mount Stirling	5,600	750	4,850
Resting Springs	3,850	0	3,850

NOTES: 1) Each of these wilderness study areas were nominated as a result of PL 94-579, Federal Land Policy and Management Act (FLPMA) Sec. 603 passed in 1976.

2) The determination of suitable or non-suitable was made in September 1992 for each of these wilderness study areas.

SOURCE: Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement. U.S. Department of the Interior, Bureau of Land Management, Las Vegas Field Office. May 1998.

is located in the Humboldt-Toyiabe National Forest north of the already established Mount Charleston Wilderness Area (see Table A-14, presented earlier). The Resting Springs Wilderness Study Area is located northwest of Pahrump along the Nevada-California Stateline adjacent to the already established Resting Springs Wilderness in California (see Figure A-5 presented earlier).

Evaluation criteria for the Wilderness Study Areas are expected to be the same as for the designated Wilderness Areas, since the wilderness study areas may eventually become designated wilderness.

A.3 SUMMARY

The purpose of this environmental baseline study was to identify the availability of information on 24 environmental impact topics that are of interest to the Federal Aviation Administration and the Bureau of Land Management in their deliberations concerning the proposed new Pahrump Valley Airport. Based on the research conducted to identify available information conclusions were reached as to the applicability, or not, of certain topics to further analyses, some of which may require field surveys. These are outlined further below.

Topical areas within which the new Pahrump Valley Airport has the potential of creating some impacts are listed below. The precise nature of these potential impacts, if any, will need to be determined through additional analysis, and in some cases additional field surveys, in the Environmental Assessment. The listing here also does not suggest any magnitude of potential impact. Based on the information developed thus far few are likely to be considered as "significant". All of these potential impacts can be mitigated or, otherwise, offset.

- Air Resources
- Compatible Land Use
- Construction Impacts
- Cumulative Impacts
- Fish, Wildlife, and Plants
- Endangered and Threatened Species
- Floodplains and Drainage
- Ground Transportation
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Historical, Architectural, Archeological, and Cultural Resources
- Light Emissions
- Native American Religious Concerns
- Natural Resources and Energy Supply
- Noise

- Secondary (Induced) Impacts
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
- Water Quality
- Wilderness

Topical areas within which the new Pahrump Valley Airport has no potential of creating an impact are listed below:

- Areas of Critical Environmental Concern
- Coastal Resources
- Farmlands
- Public Recreation Areas, Refuges, Department of Transportation Act Section 4(f)
- Wetlands and Riparian Zones
- Wild and Scenic Rivers

Topical areas that require further field surveys include:

- Fish, Wildlife, and Plants
- Endangered and Threatened Species
- Historical, Architectural, Archeological, and Cultural Resources

A.4 REFERENCES CITED:

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APPENDIX B

WIND ANALYSIS

WIND ANALYSIS

Two anemometers were installed at the airport site in April 2005 to obtain information for a minimum period of one year and wind data was obtained continuously at 30-minute intervals. The locations of the two anemometers are shown on Figure 1. The wind data included average wind speed and direction for the 30-minute period plus peak gusts, wind speed, and direction during that period. The data was evaluated and wind roses were prepared. Recommendations for runway orientation refinements were prepared based on the analysis of the wind data.

In the Airport Master Plan study, and based on over one year of wind data collected at Sites B and C between April 2005 and July 2006, the crosswind coverage for the runway alignments shown on attached Sheets 1 and 2, respectively, would be 95 percent or greater at both sites for crosswinds of 10.5 knots (12 miles per hour) or less. The wind coverage for 10.5 knots crosswinds for the runway alignment at Site C was 95.1 percent for April 2005 through March 2006 and 94.6 percent through April 2006. Unfortunately, the wind equipment at Site C was vandalized and two months of data were lost between September and November 2005. Based on the wind data collected at Site B for that two month period, the wind coverage for 10.5 knots crosswinds for the runway alignment at Site C would have been 95.6 percent between April 2005 and April 2006. The wind coverage for 10.5 knots crosswinds for the runway alignment at Site B was 98.1 percent between April 2005 and July 2006.

By the end of July 2006, both anemometers had been vandalized beyond repair.

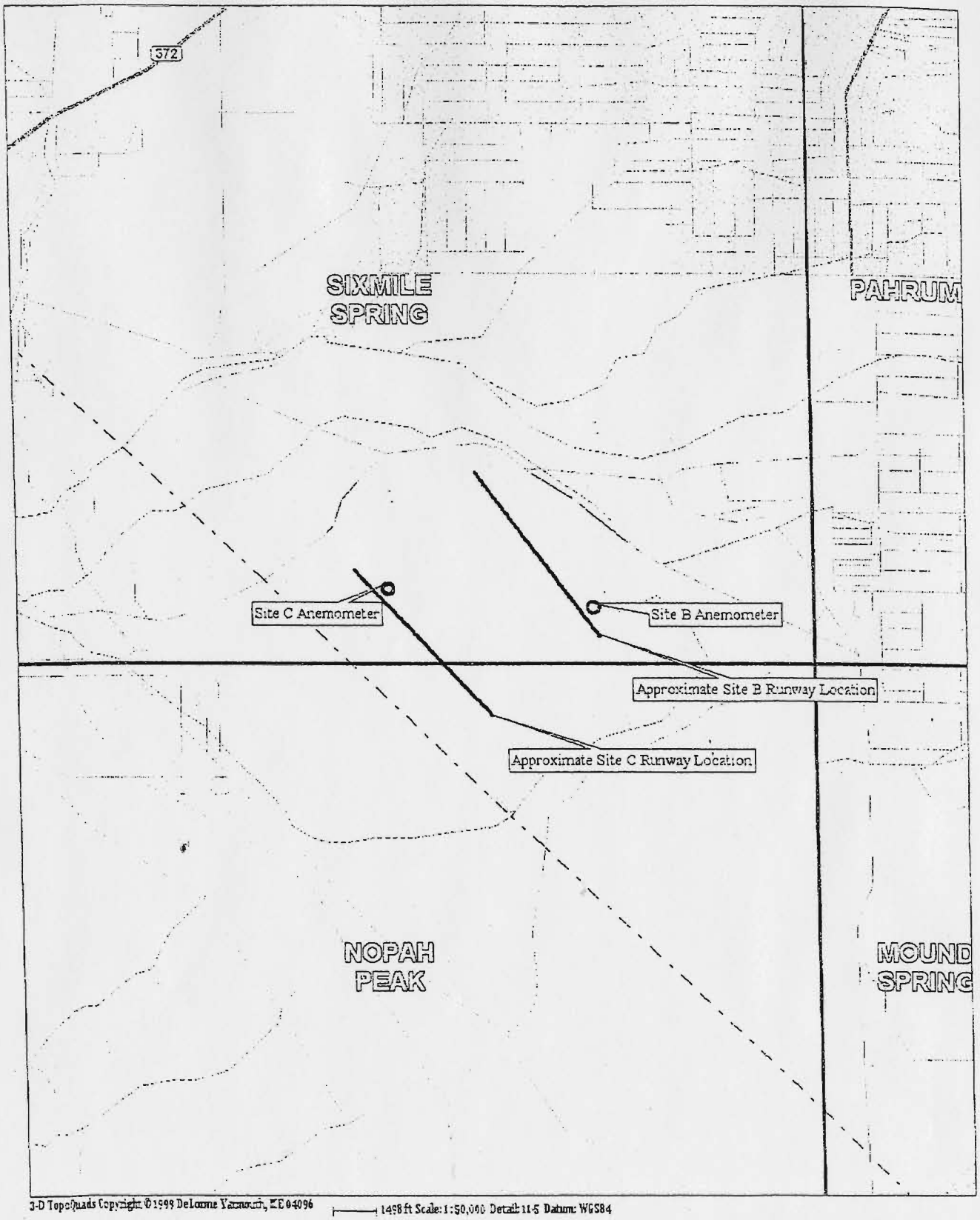
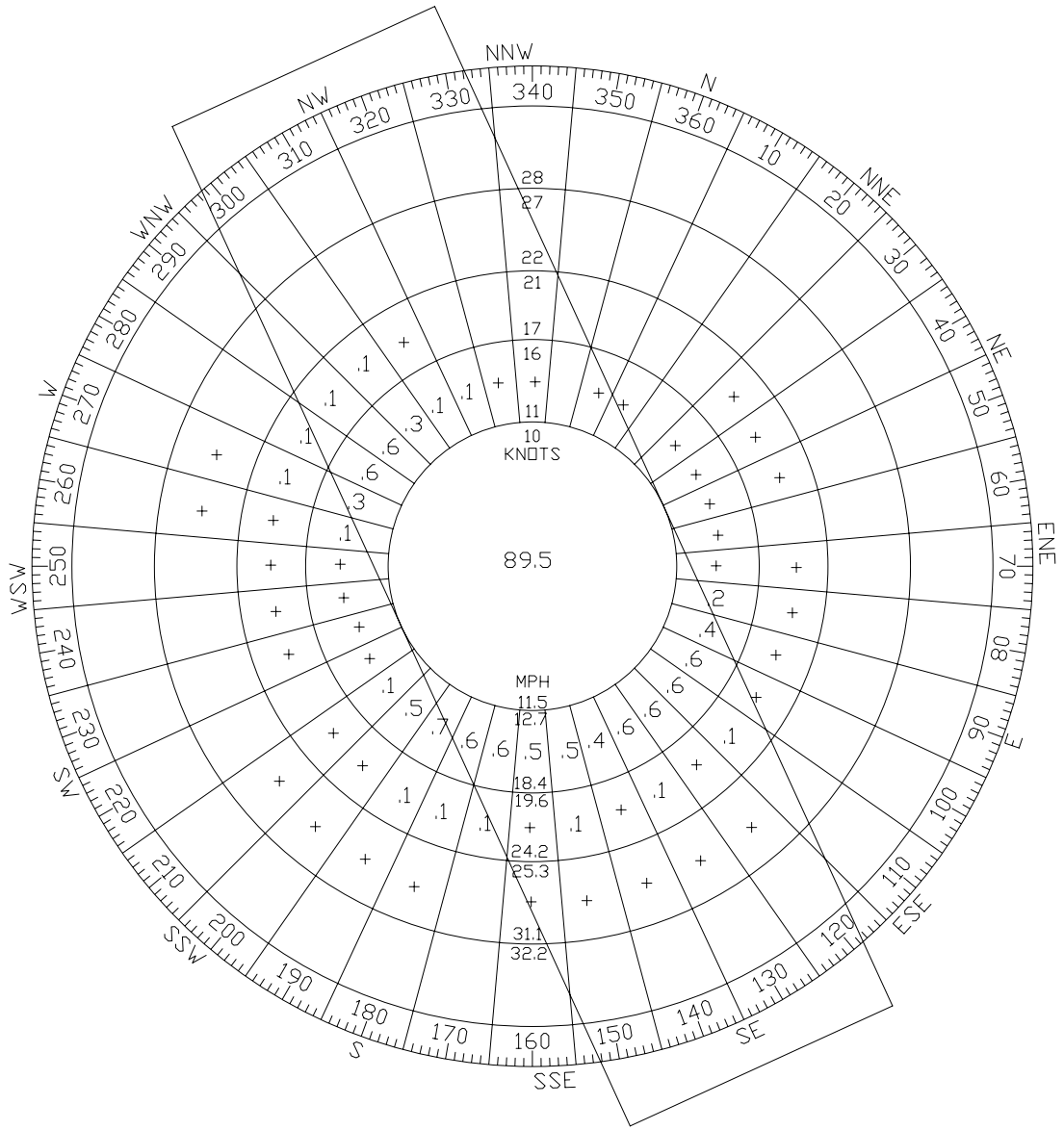


Figure 1

Pahrump Anemometer Installation Project



WIND COVERAGE

TIME PERIOD	SITE B (R/W 14–32)		
	10.5 Kt. 12.1 MPH	16.0 Kt. 18.4 MPH	21.0 Kt. 24.2 MPH
4/21/05–1/15/06 1/26/06–7/28/06	98.1%	99.8%	99.9%

NOTES:

1. ALL VALUES SHOWN IN %
2. "+" INDICATES READINGS LESS THAN 0.1%
3. RUNWAY 14–32, ASSUMES MAGNETIC DECLINATION OF 135°24' – 315°24'
4. ALIGNMENT IS N31°30'W FROM TRUE NORTH
5. MAGNETIC NORTH IS N13°06'E FROM TRUE NORTH (NOAA 2006)

NO. | REVISIONS | BY | APP | DATE

DESIGNED DB | DATE | DRAWN BB | DATE | CHECKED CB | DATE | TRACED PAHRUMP WIND ROSE | DATE | CHECKED DWB | DATE

CONTRACT NO. | DRAWING NO. 0102 | SCALE NO SCALE | REGISTERED C.E. 8044

TOWN OF PAHRUMP
STATE OF NEVADA

PAHRUMP AIRPORT

NEVADA

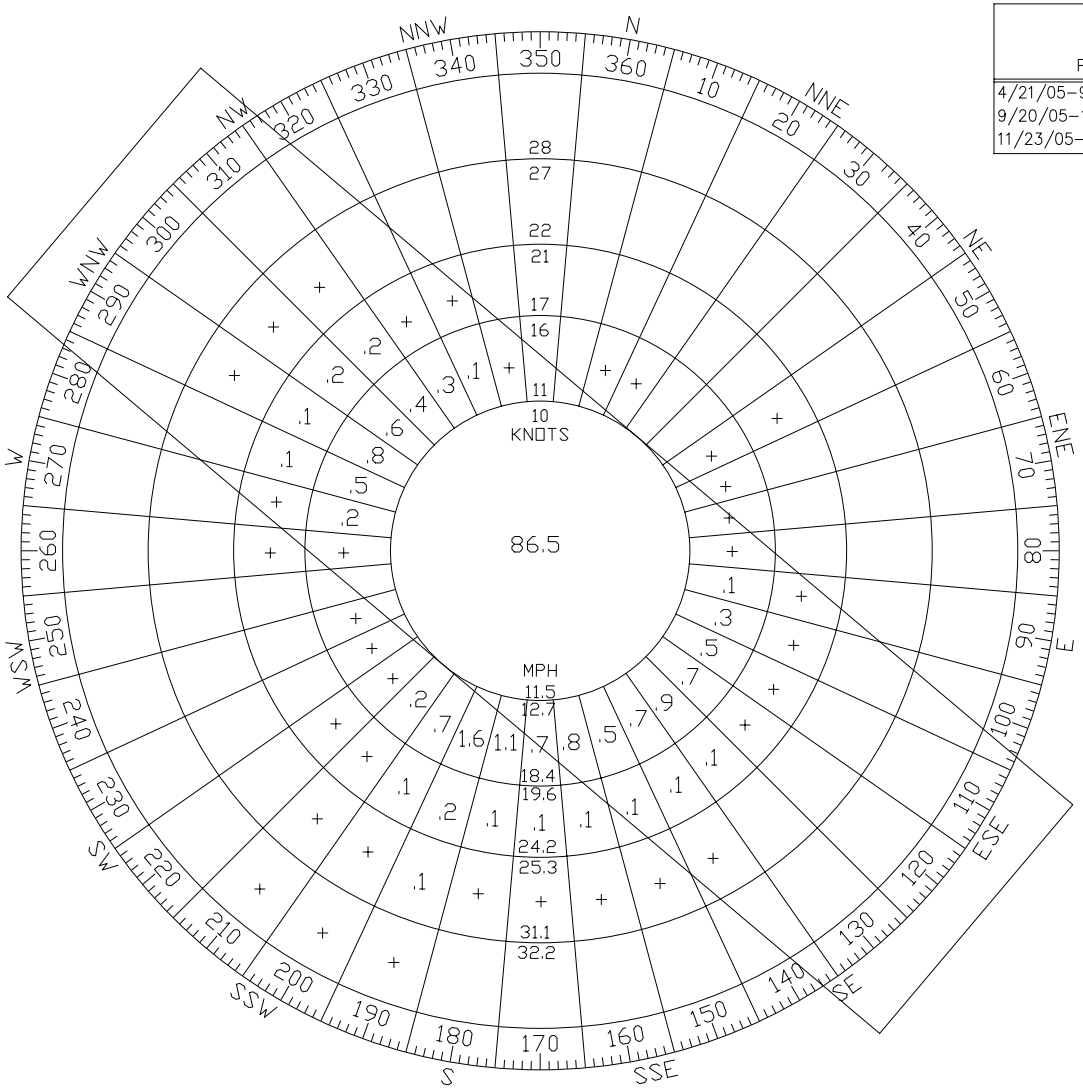
PAHRUMP,

WIND ROSE – SITE B

Reinard W. Brantley
CONSULTING AIRPORT ENGINEER
8125 • King Road, Suite 201 • Loomis, California 95650–8004 • (916) 652–4725

DATE July 28, 2006

SHEET NUMBER
1 OF 2 SHEETS



WIND COVERAGE

TIME PERIOD	SITE C (R/W 12–30) 10.5 Kt. 12.1 MPH	16.0 Kt. 18.4 MPH	21.0 Kt. 24.2 MPH
4/21/05–9/20/05 (SITE C) 9/20/05–11/23/05 (SITE B) 11/23/05–4/22/06 (SITE C)	95.6%	99.6%	99.9%

NOTES:

1. ALL VALUES SHOWN IN %
2. "+" INDICATES READINGS LESS THAN 0.1%
3. ALIGNMENT IS N46°43'11.2"W FROM TRUE NORTH (ALIGNMENT OF STATE LINE TAKEN FROM BEAR ENGINEERING RECORD OF SURVEY, JUNE 2002)
4. MAGNETIC NORTH IS N13°06'E FROM TRUE NORTH (NOAA 2006)
5. RUNWAY 12–30, WITH A MAGNETIC HEADING OF 120°10'48.8"–300°10'48.8" (2006 DECLINATION)

NO. | REVISIONS | BY | APP'D | DATE

DESIGNED DB | DRAWN CB | CHECKED | DATE

CONTRACT NO. | DRAWING NO. XX.XX | TYPE

SCALE NO SCALE

REGISTERED C.E. 8044

TOWN OF PAHRUMP
STATE OF NEVADA

PAHRUMP AIRPORT

PAHRUMP, NEVADA

WIND ROSE – SITE C (WITH SUPPLEMENTED DATA)

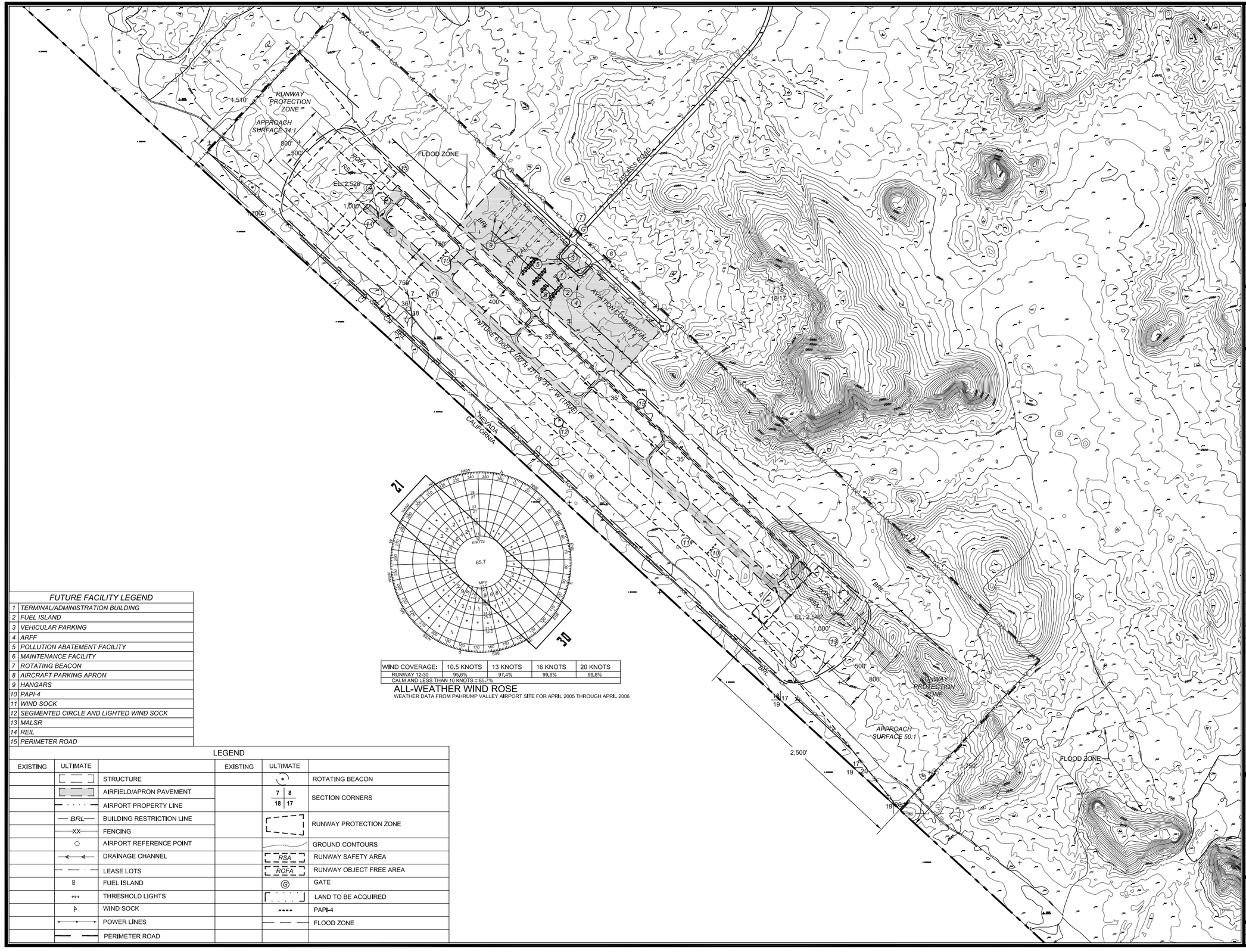
Richard W. Brandley
CONSULTING AIRPORT ENGINEER
6125 King Road, Suite 201 • Loomis, California 95650-9004 • (916) 652-4725

DATE NOV. 6, 2006

SHEET 2 OF 2 SHEETS

APPENDIX C

AIRPORT LAYOUT PLAN



WIND COVERAGE:	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 12-30	95,6%	97,4%	99,6%	99,8%
CALM AND LESS THAN 10 KNOTS = 85,7%				

ALL-WEATHER WIND ROSE

WEATHER DATA FROM PAHRUMP VALLEY AIRPORT SITE FOR APRIL 2005 THROUGH APRIL 2006

FUTURE FACILITY LEGEND	
1	TERMINAL/ADMINISTRATION BUILDING
2	FUEL ISLAND
3	VEHICULAR PARKING
4	ARFF
5	POLLUTION ABATEMENT FACILITY
6	MAINTENANCE FACILITY
7	ROTATING BEACON
8	AIRCRAFT PARKING APRON
9	HANGARS
10	PAPI-4
11	WIND SOCK
12	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
13	MALSR
14	REIL
15	PERIMETER ROAD

LEGEND

EXISTING	ULTIMATE		EXISTING	ULTIMATE	
		STRUCTURE			ROTATING BEACON
		AIRFIELD/APRON PAVEMENT		7 8 / 18 17	SECTION CORNERS
		AIRPORT PROPERTY LINE			
		BUILDING RESTRICTION LINE			RUNWAY PROTECTION ZONE
		FENCING			
		AIRPORT REFERENCE POINT			GROUND CONTOURS
		DRAINAGE CHANNEL		RSA	RUNWAY SAFETY AREA
		LEASE LOTS		ROFA	RUNWAY OBJECT FREE AREA
		FUEL ISLAND		G	GATE
		THRESHOLD LIGHTS			LAND TO BE ACQUIRED
		WIND SOCK			PAPI-4
		POWER LINES			FLOOD ZONE
		PERIMETER ROAD			

PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE. PAHRUMP NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

AIRPORT LAYOUT PLAN

TRUE NORTH

MAGNETIC NORTH 13°06'E(2006)

0 500 1000

NOTE: GRAPHIC SCALE IN FEET

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NO.	REVISIONS	DATE

FAA APPROVAL

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TOWN MANAGER 07-10-2007

TOWN OF PAHRUMP DATE

TARIES CONSULTANTS LTD.

Reinard W. Brandley

CONSULTING AIRPORT ENGINEER

PAHRUMP VALLEY AIRPORT

NYE COUNTY, NEVADA

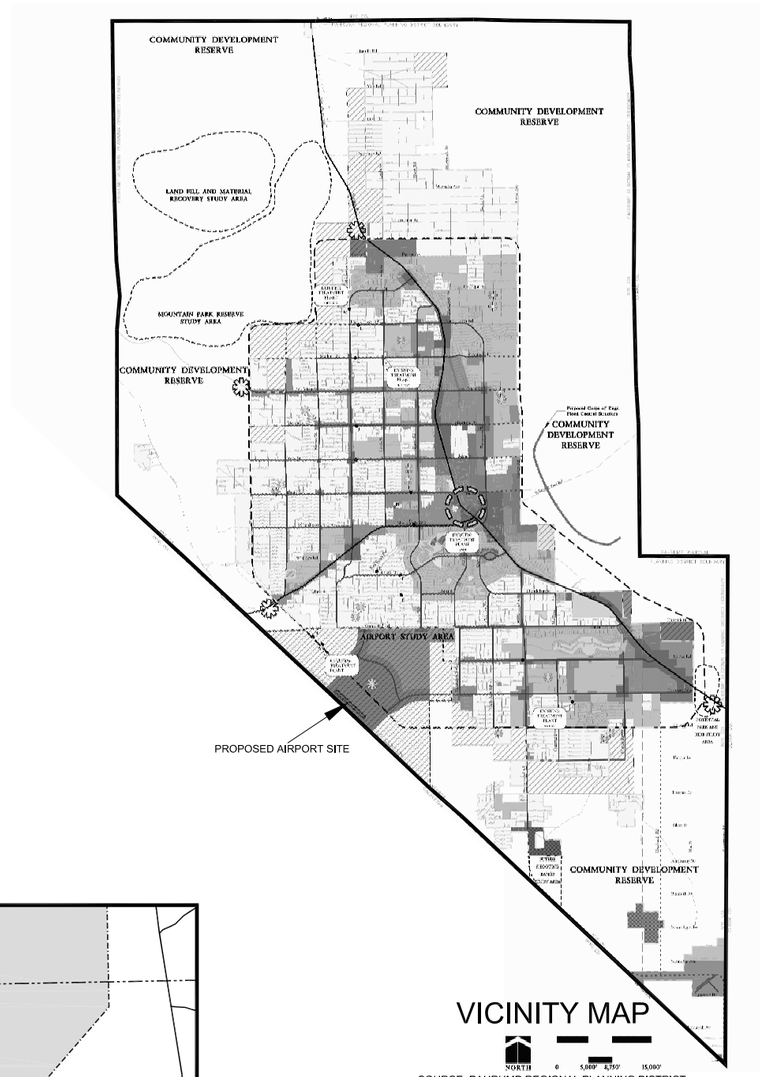
SHEET 1 OF 5

NAME: PVA-1-ALP.dwg NO: 4470-09

DATE: 06-05-2008 PLOT SCALE: 1"=1,000'

AIRPORT DATA			
		EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL) FEET (NAVD 88)			2,535'
AIRPORT REFERENCE	LATITUDE		36° 07' 42.311" N
POINT (ARP) COORDINATES (NAD 83)	LONGITUDE		116° 03' 14.336" W
NORMAL MAX. TEMP. HOTTEST MONTH			100° F
AIRPORT AND TERMINAL NAVAIDS			GPS/WAAS
AIRPORT SERVICE LEVEL AND ROLE			GA
ROTATING BEACON			YES
TAXIWAY LIGHTING			MITL
TAXIWAY SIGN SYSTEM			YES
AIR TRAFFIC CONTROL TOWER			NO
RADAR APPROACH/DEPARTURE CONTROL			LAS TRACON
SEGMENTED CIRCLE AND LIGHTED WIND CONE			YES
AIRPORT REFERENCE CODE			C-II
GPS AT AIRPORT			YES
AIRPORT ACREAGE			560

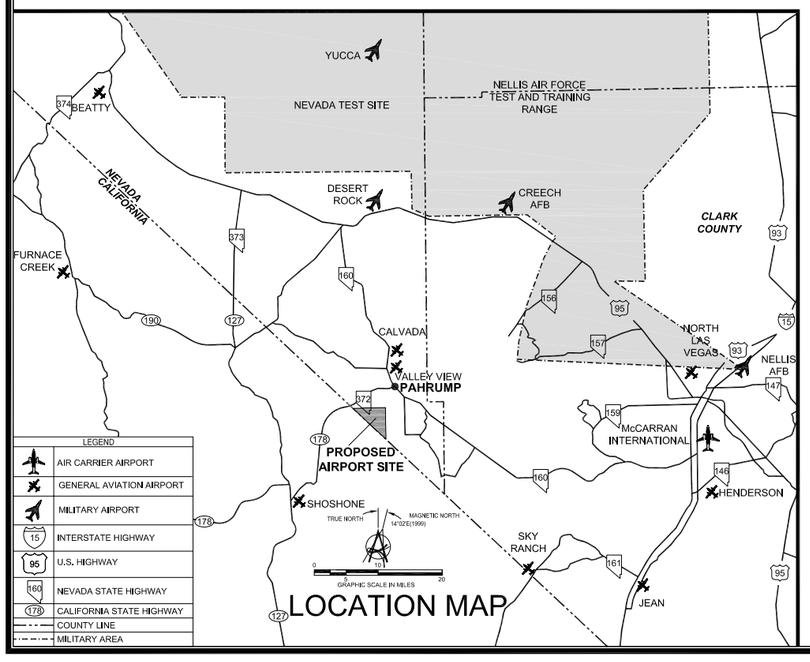
RUNWAY END COORDINATES (NAD 83)		
12-21-2006	EXISTING	ULTIMATE
RUNWAY 12		36° 08' 02.785" N 116° 03' 40.804" W
RUNWAY 30		36° 07' 21.834" N 116° 02' 47.873" W



VICINITY MAP

NORTH 0 5,000' 8,750' 15,000'

SOURCE: PAHRUMP REGIONAL PLANNING DISTRICT MASTER PLAN UPDATE NYE COUNTY, NEVADA



LOCATION MAP

RUNWAY DATA			
		RUNWAY 12-30	
		EXISTING	ULTIMATE
EFFECTIVE GRADIENT (%)			.20
WIND COVERAGE (10.5 KNOTS) ALL WEATHER(%)			94.6
APPROACH VISIBILITY MINIMUMS (STATUTE MILE)	12		3/4 M
	30		1/2 M
AIRPORT REFERENCE CODE/CRITICAL AIRCRAFT			C-II
RUNWAY MARKING	12		NONPRECISION
	30		PRECISION
APPROACH SURFACES (FAR PART 77)	12		NP 34:1
	30		P 50:1
SEPARATION - RUNWAY CENTERLINE TO PARALLEL TAXIWAY CENTERLINE			400'
TAXIWAY OBJECT FREE AREA WIDTH			131'
TAXIWAY SAFETY AREA WIDTH			79'
ELEVATIONS (NAVD 88) OF RUNWAY ENDS	12		2,528'
	30		2,540'
ELEVATION (NAVD 88) OF RUNWAY HIGH POINT			2,540'
ELEVATION (NAVD 88) OF RUNWAY LOW POINT			2,528'
LINE OF SIGHT REQUIREMENT MET			YES
RUNWAY DIMENSIONS (FEET)			6,000' X 100'
RUNWAY SURFACE TYPE			ASPHALT
TAXIWAY SURFACE TYPE			ASPHALT
APPROACH SLOPES	12		34:1
	30		50:1
PAVEMENT STRENGTH (LBS)	SINGLE		12,500
	DUAL		30,000
RUNWAY LIGHTING			MIRL
IFR NAVIGATIONAL AIDS	12		GPS
	30		GPS
VISUAL AIDS	12		PAPI-4, REIL
	30		PAPI-4, MALSR
RUNWAY PROTECTION ZONE DIMENSIONS	12		1,700' X 1,000' X 1,510'
	30		2,500' X 1,000' X 1,750'
RUNWAY SAFETY AREA DIMENSIONS			8,000' X 500'
RUNWAY OBJECT FREE AREA DIMENSIONS			8,000' X 800'
PRECISION OBSTACLE FREE ZONE	12		N/A
	30		200' X 800'
OBSTACLE FREE ZONE LENGTH BEYOND STOP END OF RUNWAY	12		200'
	30		200'
OBSTACLE FREE ZONE WIDTH	12		400'
	30		400'
DISTANCE FROM RUNWAY CENTERLINE TO HOLD POSITION MARKINGS AND SIGNS			250'
TOUCHDOWN ZONE ELEVATION	12		2,534'
	30		2,540'

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PAHRUMP
NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

DATA TABLES

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NO.	REVISIONS	DATE

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TOWN MANAGER 07-10-2007
TOWN OF PAHRUMP DATE

VARIES CONSULTANTS LTD.
Reinard W. Brandley
CONSULTING AIRPORT ENGINEER

PAHRUMP VALLEY AIRPORT
NYE COUNTY, NEVADA

SHEET 2 OF 5

NAME: PVA-2-Date Tables.dwg
DATE: 05-15-2008
NO: 4470-09
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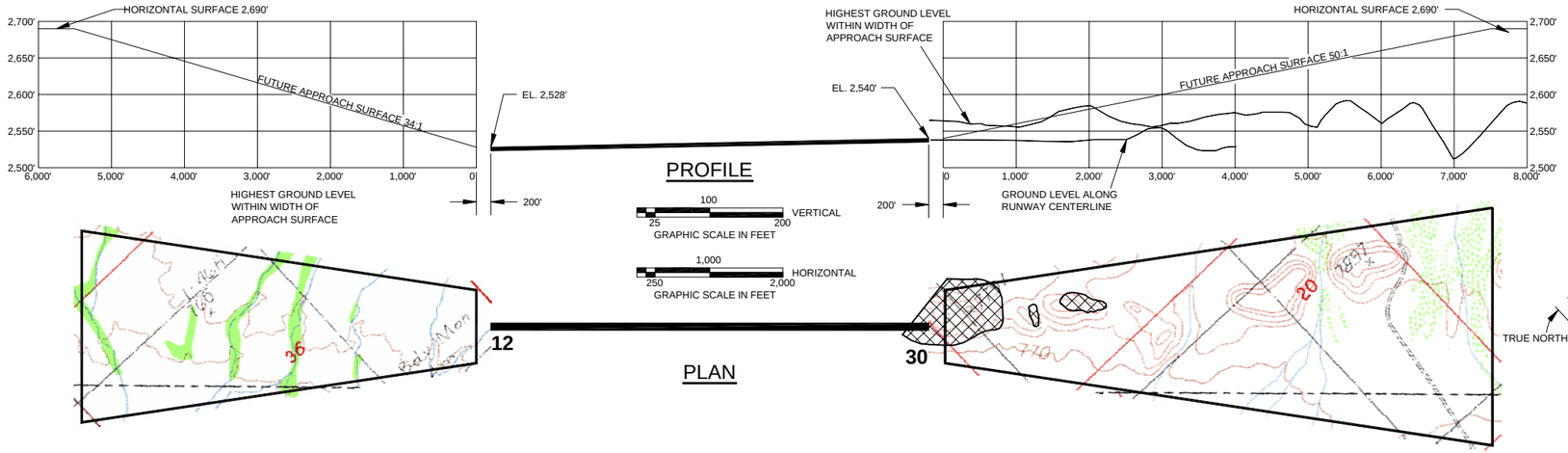

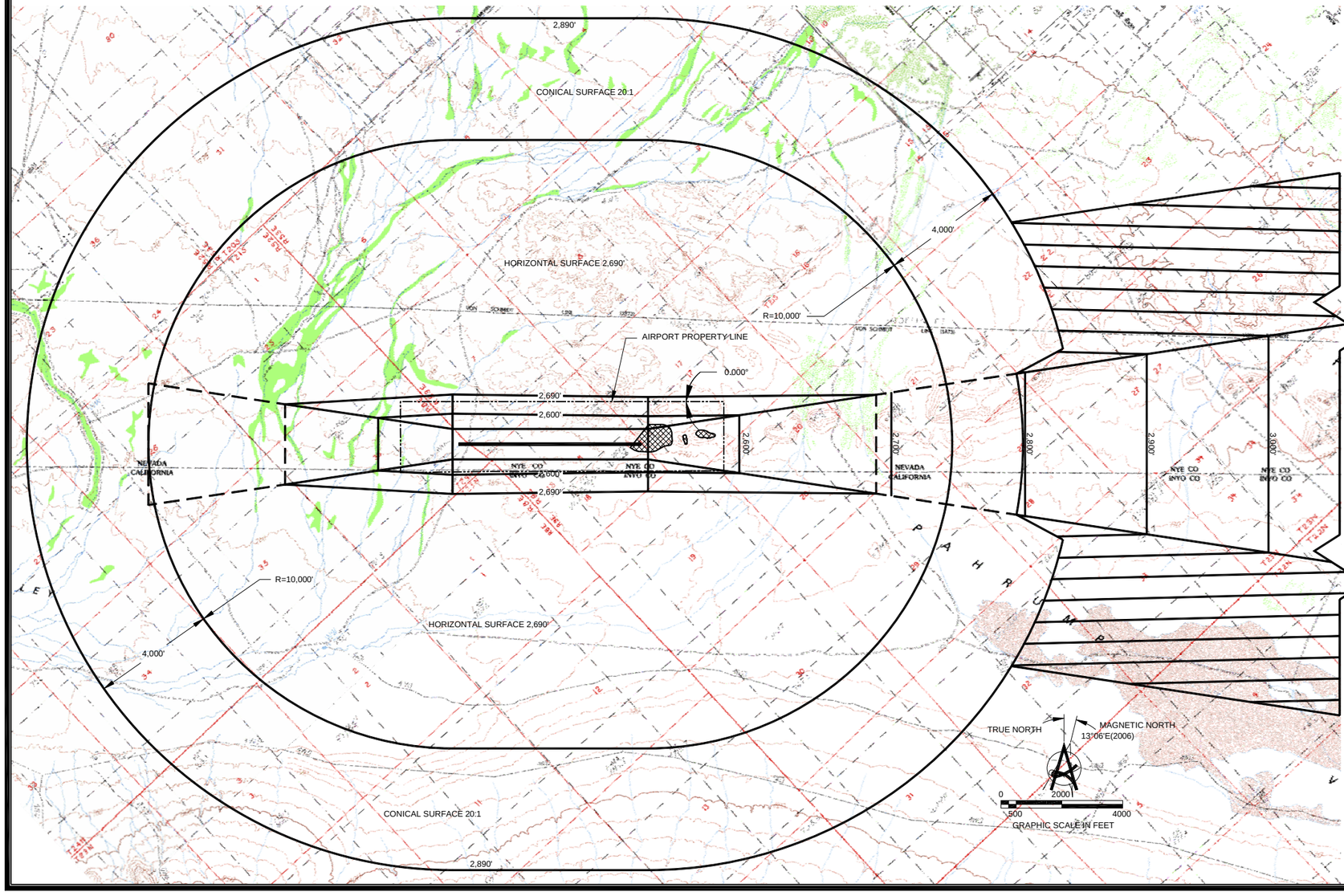

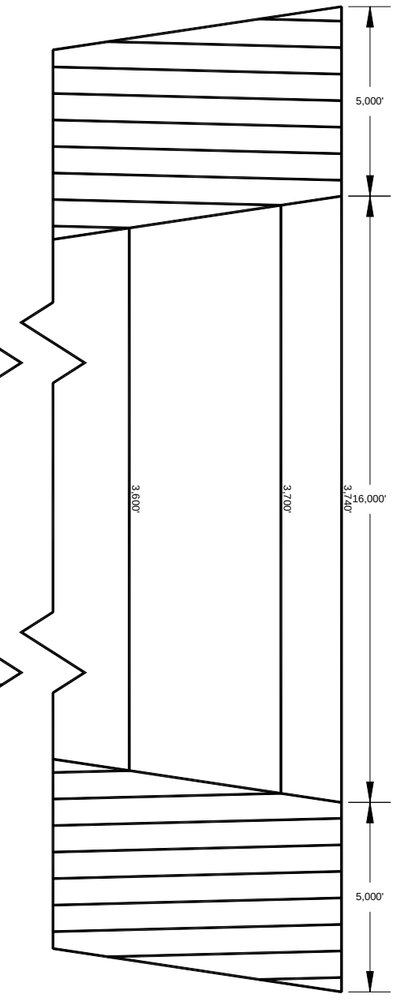

PAHRUMP VALLEY AIRPORT MASTER PLAN

AIRSPACE PLAN

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NO.	REVISIONS	DATE

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07-10-2007

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Reinard W. Brandley
CONSULTING AIRPORT ENGINEER

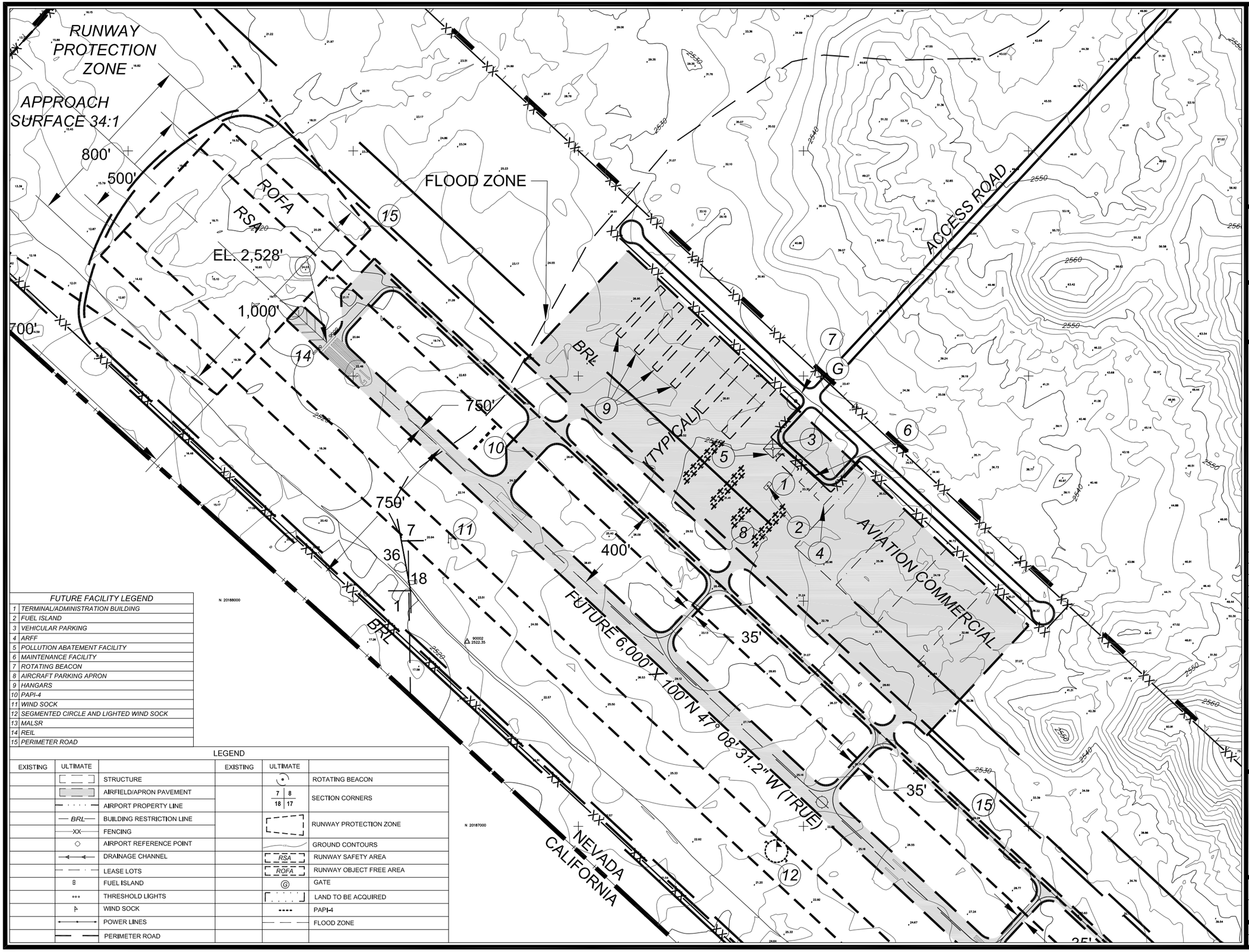
PAHRUMP VALLEY AIRPORT

NYE COUNTY, NEVADA

SHEET 3 OF 5

NAME: PVA-3-Airspace Plan.dwg | NO: 4470-09

DATE: 05-15-2008 | PLOT SCALE: 1"= 4,000'



FUTURE FACILITY LEGEND	
1	TERMINAL/ADMINISTRATION BUILDING
2	FUEL ISLAND
3	VEHICULAR PARKING
4	ARFF
5	POLLUTION ABATEMENT FACILITY
6	MAINTENANCE FACILITY
7	ROTATING BEACON
8	AIRCRAFT PARKING APRON
9	HANGARS
10	PAPI-4
11	WIND SOCK
12	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
13	MALSR
14	REIL
15	PERIMETER ROAD

LEGEND					
EXISTING	ULTIMATE		EXISTING	ULTIMATE	
		STRUCTURE			ROTATING BEACON
		AIRFIELD/APRON PAVEMENT		7 8 / 18 17	SECTION CORNERS
		AIRPORT PROPERTY LINE			
	BRL	BUILDING RESTRICTION LINE			RUNWAY PROTECTION ZONE
	XX	FENCING			
		AIRPORT REFERENCE POINT			GROUND CONTOURS
		DRAINAGE CHANNEL		RSA	RUNWAY SAFETY AREA
		LEASE LOTS		ROFA	RUNWAY OBJECT FREE AREA
		FUEL ISLAND		G	GATE
		THRESHOLD LIGHTS			LAND TO BE ACQUIRED
		WIND SOCK			PAPI-4
		POWER LINES			FLOOD ZONE
		PERIMETER ROAD			

PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE
PAHRUMP NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

TERMINAL AREA AND ACCESS PLAN

TRUE NORTH
MAGNETIC NORTH 13°06'E(2006)

0 50 200 400
GRAPHIC SCALE IN FEET

NOTE:
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NO.	REVISIONS	DATE

FAA APPROVAL

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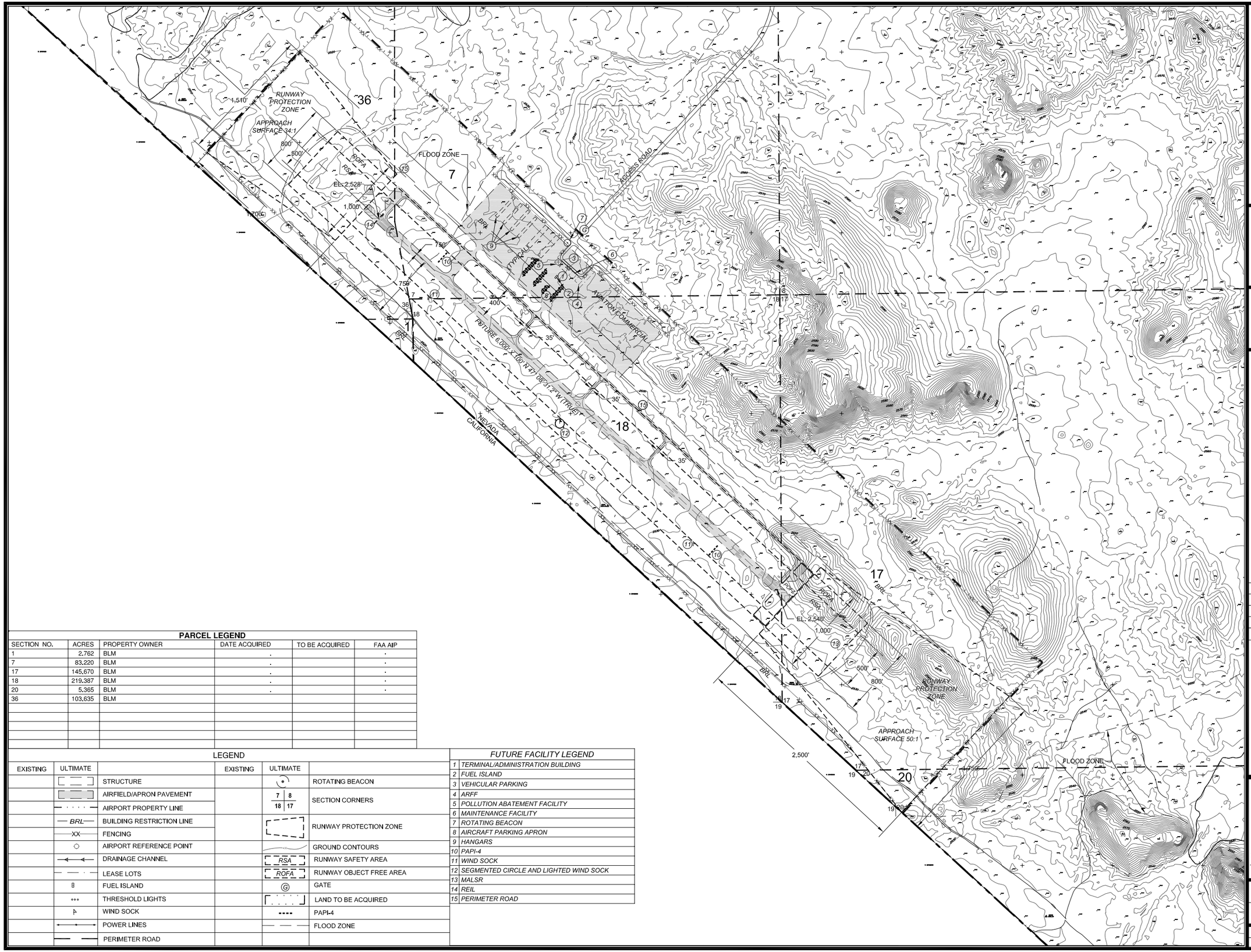
TOWN MANAGER 07-10-2007
TOWN OF PAHRUMP DATE

ARIES CONSULTANTS LTD.
Reinard W. Brandley
CONSULTING AIRPORT ENGINEER

PAHRUMP VALLEY AIRPORT
NYE COUNTY, NEVADA

SHEET 4 OF 5

NAME:PVA-1-ALP.dwg NO: 4470-01
DATE: 06-05-2008 PLOT SCALE: 1" = 400'



PAHRUMP VALLEY AIRPORT MASTER PLAN

AIRPORT PROPERTY MAP EXHIBIT A

TRUE NORTH — MAGNETIC NORTH 13°06'E(2006)

0 500 1000

NOTE: GRAPHIC SCALE IN FEET

THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH AN AIRPORT IMPROVEMENT PROGRAM GRANT FROM THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS DOCUMENT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

NO.	REVISIONS	DATE

FAA APPROVAL

BY _____ (N:\Nevada\Pahrump Valley\Dave's Signature.tif)

TOWN MANAGER 07-10-2007

TOWN OF PAHRUMP DATE

VARIES CONSULTANTS LTD.

Reinard W. Brandley

CONSULTING AIRPORT ENGINEER

PAHRUMP VALLEY AIRPORT

NYE COUNTY, NEVADA

SHEET 5 OF 5

NAME: PVA-5-Property Map.dwg | NO: 4470-09

DATE: 05-15-2008 | PLOT SCALE: 1"= 500'

PARCEL LEGEND

SECTION NO.	ACRES	PROPERTY OWNER	DATE ACQUIRED	TO BE ACQUIRED	FAA AIP
1	2.762	BLM	.		.
7	83.220	BLM	.		.
17	145.670	BLM	.		.
18	219.387	BLM	.		.
20	5.365	BLM	.		.
36	103.635	BLM			

LEGEND

EXISTING	ULTIMATE		EXISTING	ULTIMATE	
		STRUCTURE			ROTATING BEACON
		AIRFIELD/APRON PAVEMENT		7 8 / 18 17	SECTION CORNERS
		AIRPORT PROPERTY LINE			RUNWAY PROTECTION ZONE
	BRL	BUILDING RESTRICTION LINE			
	XX	FENCING			
		AIRPORT REFERENCE POINT			GROUND CONTOURS
		DRAINAGE CHANNEL		RSA	RUNWAY SAFETY AREA
		LEASE LOTS		ROFA	RUNWAY OBJECT FREE AREA
		FUEL ISLAND		G	GATE
		THRESHOLD LIGHTS			LAND TO BE ACQUIRED
		WIND SOCK			PAPI-4
		POWER LINES			FLOOD ZONE
		PERIMETER ROAD			

FUTURE FACILITY LEGEND

1	TERMINAL/ADMINISTRATION BUILDING
2	FUEL ISLAND
3	VEHICULAR PARKING
4	ARFF
5	POLLUTION ABATEMENT FACILITY
6	MAINTENANCE FACILITY
7	ROTATING BEACON
8	AIRCRAFT PARKING APRON
9	HANGARS
10	PAPI-4
11	WIND SOCK
12	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
13	MALSR
14	REIL
15	PERIMETER ROAD

APPENDIX D

AIRPORT DEVELOPMENT ALTERNATIVES

AIRPORT DEVELOPMENT ALTERNATIVES

1. 1987 PAHRUMP VALLEY AIRPORT SITE SELECTION STUDY

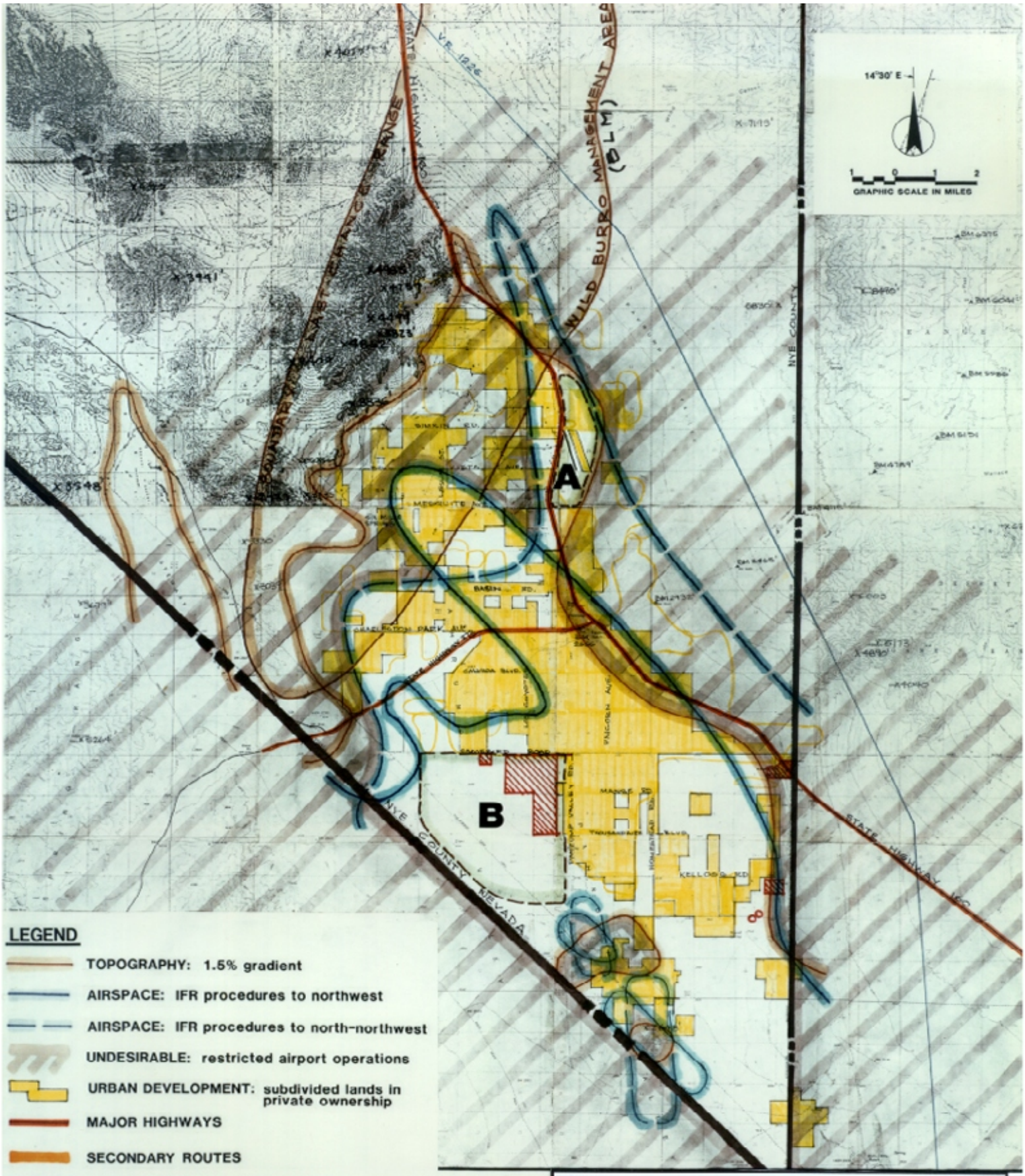
In the March 1987 Pahrump Valley Airport Site Selection Study, funded by the Federal Aviation Administration (FAA) and Nye County, several potential sites for a new airport were identified and evaluated (see attached Figure 1, Preliminary Screening Map). Site B, southwest of Gamebird Road and Pahrump Valley Boulevard, was selected as the potential airport site. A detailed Airport Layout Plan was prepared for the selected site. Site A, in the vicinity of the privately-owned Calvada Airport, was eliminated from further consideration.

2. 2000 PAHRUMP VALLEY AIRPORT SITE EVALUATION

In the May 2000, Pahrump Valley Airport Site Evaluation, funded by the FAA and Nevada Department of Transportation, two alternative airport development concepts were prepared for an airport in the Site B area identified in the 1987 Report. (see Figure 1-2 in Airport Master Plan Report) Site B is as identified in the 1987 Report. Site C is slightly further, about 5,000 feet, to the southwest of Site B. Site C was identified based on input from the Pahrump Town Board and Bureau of Land Management (BLM), including BLM field surveys.

3. 2004 PAHRUMP VALLEY AIRPORT MASTER PLAN AND BASELINE ENVIRONMENTAL STUDY

The airport development alternatives identified in the earlier reports have been refined in the ongoing Pahrump Valley Airport Master Plan and Baseline Environmental Study. Alternative Airport Development Layouts for Sites B and C are presented on attached Figures B and C, respectively.

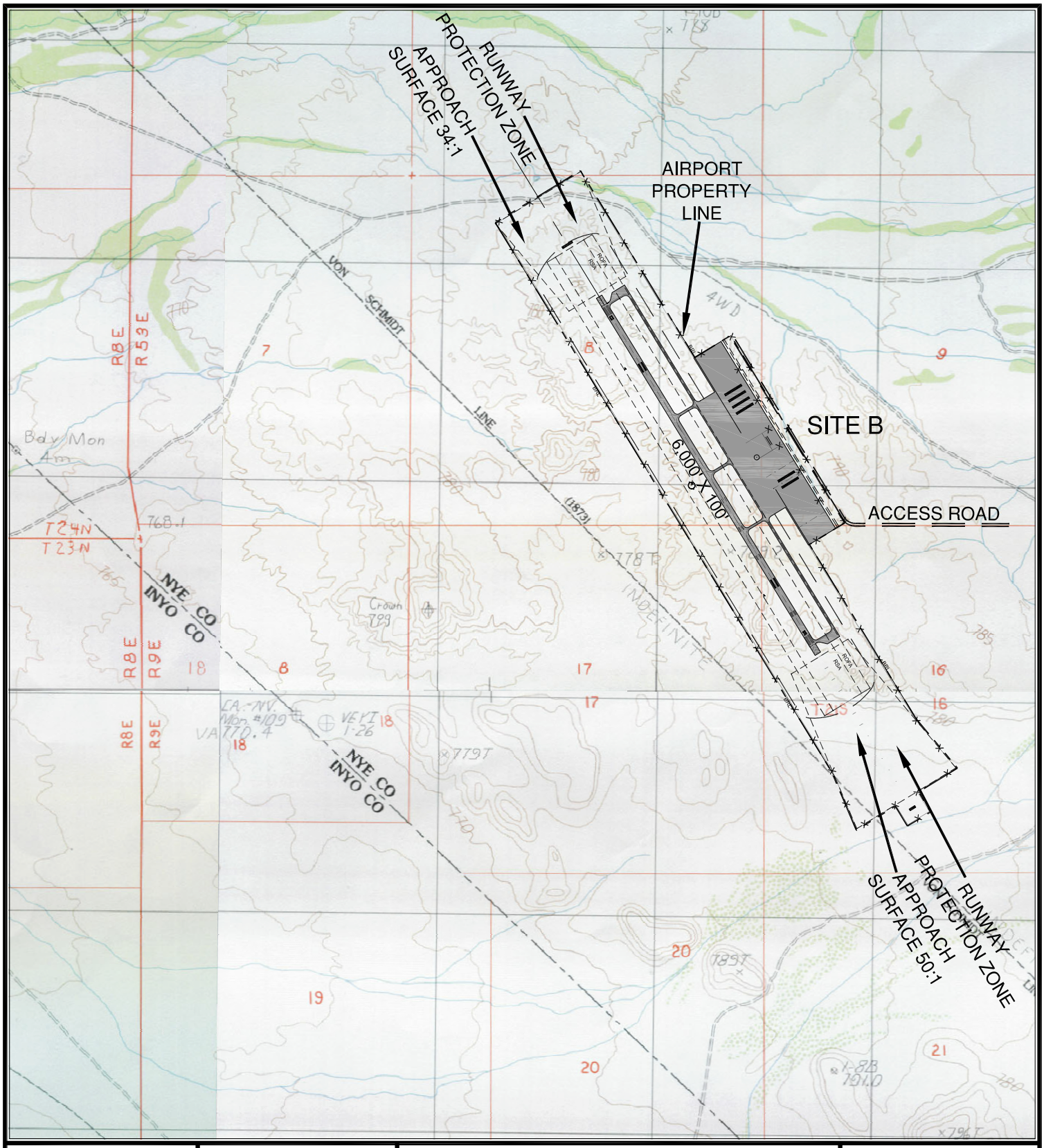


2000 FIGURE 1

PAHRUMP VALLEY AIRPORT PAHRUMP, NEVADA

PRELIMINARY SCREENING MAP

ARIES CONSULTANTS LTD.



PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE. PAHRUMP NEVADA

PAHRUMP VALLEY AIRPORT MASTER PLAN

TRUE NORTH

MAGNETIC NORTH 13°06'E(2006)

0 1000 2000

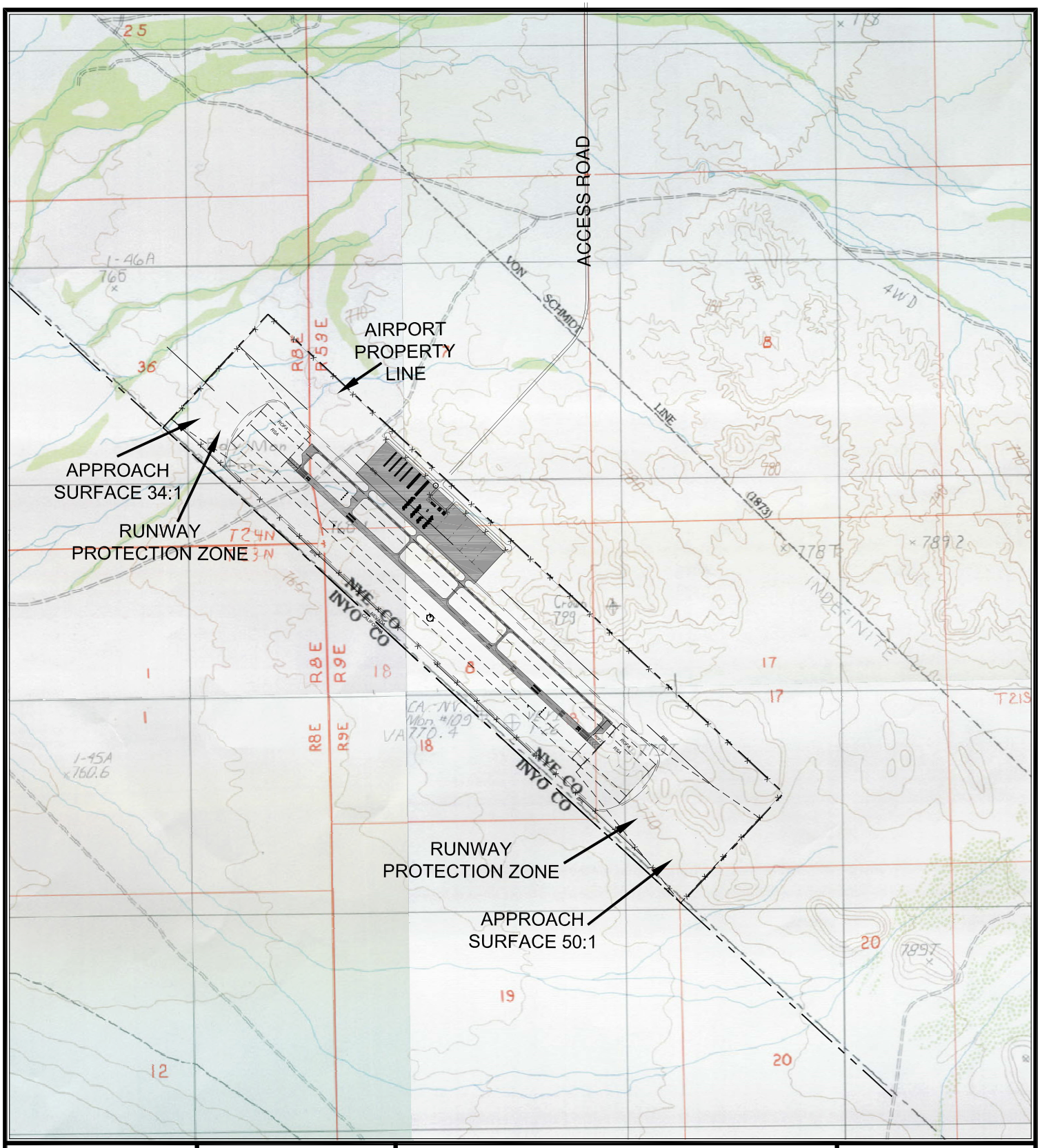
250

GRAPHIC SCALE IN FEET

AIRPORT LAYOUT SITE B

ARIES CONSULTANTS LTD.

PAHRUMP VALLEY AIRPORT	FIGURE B
NYE COUNTY, NEVADA	
NAME: PVA-03-Layout Site B.DWG	NO: 4080-02
DATE: Jul 10, 2007	PLOT SCALE: 1"=2,000'



PAHRUMP VALLEY AIRPORT MASTER PLAN

PAST AND PRESENT WORKING TOWARDS A NEW AND BETTER FUTURE. PAHRUMP NEVADA

TRUE NORTH

MAGNETIC NORTH 13°06'E(2006)

0 1000 2000

250

GRAPHIC SCALE IN FEET

AIRPORT LAYOUT SITE C

ARIES CONSULTANTS LTD.

PAHRUMP VALLEY AIRPORT

NYE COUNTY, NEVADA

FIGURE C

NAME: PVA-02-Layout Site C.DWG

NO: 4080-02

DATE: May 15, 2008

PLOT SCALE: 1"=2,000'

APPENDIX E

SOIL AND PAVEMENT STUDY

SOIL AND PAVEMENT STUDY

PROPOSED
PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

JULY 1, 2008

Reinard W. Brandley
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SOIL AND PAVEMENT STUDY

PROPOSED PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

JULY 1, 2008

R E I N A R D W. B R A N D L E Y

CONSULTING AIRPORT ENGINEER
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SOIL AND PAVEMENT STUDY

PROPOSED PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

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July 1, 2008

SOIL AND PAVEMENT STUDY

PROPOSED PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

I. INTRODUCTION

The Town of Pahrump proposes the construction of a new airport to be located just inside the California-Nevada border in that area south of Gamebird Road, Pahrump, Nevada. The proposed airport development will consist of the construction of a 6,000-foot runway, a parallel taxiway, cross taxiways, aircraft parking apron, aircraft storage hangars, fixed base operator hangars, and an access road from Gamebird Road.

The site is located in a valley, but there is significant difference in elevation from one end of the valley to the other and hills occur east and north of the site. Significant grading will be required to develop the site. Pavement sections must be designed to accommodate the design aircraft.

The site plan and layout of the airport was prepared by Aries Consultants Ltd., Morgan Hill, California. A Soil and Pavement Study has been conducted at this site to determine the soil requirements that affect grading, the pavement section requirements, and generalized information on foundation requirements for buildings. This report presents the results of this investigation.

II. FOUNDATION AND SOIL CONDITIONS

J. L. Werle and B. Luke in a paper entitled, *Engineering with Heavy Cemented Soils in Las Vegas, Nevada,* presented data on the general geology of the area and the formation of cemented sediments, locally known as "caliche." These formations also exist in the Pahrump area and exist at the proposed airport site. Their description of the formation of these materials is summarized in this section of this report.

The Pahrump area valley is defined by normal faulting and is bounded by north-south trending mountain ranges. The basin is fairly wide and is backfilled with fairly deep sediments derived from the surrounding mountains, which are composed of sedimentary and igneous rocks. Most of the rock in the mountain is carbonate sedimentary rock. Alluvial fan deposits consisting of sands and gravels form along the mountain fronts, producing a slope down into the valley floor. In general, the sediments grade from coarse grained near the source area to progressively finer sand, silt, and clay materials at the lower elevations. Beds of amorphous and crystalline gypsum are also common within the basin fill sediments.

As a result of various geological processes over time, zones of calcareous cemented deposits (caliche) are present at various locations and depths. Infiltration of precipitation in the mountains recharges the underlying aquifers within the valley. The stacked aquifers are separated by layers of confining fine-grained lacustrine deposits, ultimately building up pressure with the only release occurring along faults and fractures where groundwater migrates to the surface producing springs. Combined with high rates of evapotranspiration, spring discharge often results in precipitation of caliche. As the water table fluctuates within the capillary fringe zone of the unconfined shallow aquifer, differential cementation of receptive type soils often produces very hard discontinuous layers of caliche. These conditions are common in the Las Vegas Valley but are also common in the area of the proposed airport in Pahrump.

The material commonly known to local engineers as caliche results from carbonate cementation of sediments, both fine and coarse grained. The cementation forms as coatings, nodules or crusts, often creating conglomerate type formations. Caliche can occur as thin or thick, soft or hard, extremely porous to impermeable, and at various depths; however, it typically forms near a surface that is resistant to weathering and composed of calcium carbonate.

The occurrence of caliche at various degrees of cementation and of layers of gypsum exist in many areas at the proposed airport site.

The field investigations conducted at this site consisted of drilling 49 exploratory test holes to depths ranging from 12 to 51 feet. These test holes were drilled with the rotary drill rig and undisturbed core samples were obtained with the 2½-inch modified California Type Soil Sampler. Diamond cores were taken in the rock zones. The soil samples taken from test holes were retained in brass liners in order that the undisturbed nature of the soil would be preserved until the samples could be tested in the laboratory.

The location of the test holes is shown on the Soil Boring Location Map, Sheet No. 1. The graphic log of the borings, together with the drive-blow record showing the number of blows required to drive the sampler each foot, is shown on the Soil Profile Sheets, Sheets No. 2 through 9. The Soil Profile Legend is shown on Sheet No. 10.

Visual classification of each soil stratum encountered was made in the field by a Field Geologist at the time the test holes were drilled. The soil samples obtained were checked in the laboratory by a Geotechnical Engineer to augment the field classification. A description of each soil encountered is shown on the Soil Profile Sheets. A test was conducted on each sample to see if there was any calcareous material and, if discovered, it was so noted on the Soil Profile Sheets.

The soil stratification encountered at this site varied somewhat from location to location. In general, the soils in the northwestern section of the proposed runway in the low-lying area

consisted of medium plastic clay soils underlain by various strata of silty clays, silty sands, silty sands and gravels, and/or a white rock that was identified as gypsum. The rock was not encountered in all test holes as is common in caliche deposits. On the southeastern half of the proposed runway and on the proposed taxiway and apron the surface soils generally consisted of clayey sands to silty fine sands and were underlain by various layers of sandy clay, clayey sands and, in some instances, the white rock, which was generally classified as gypsum.

The surface soils encountered along the proposed access road to the site generally consisted of a brown sandy clay, but in some instances the clay was replaced by a silty fine sand. These surface sandy clay soils were underlain by various layers of silty fine sands, sandy silts, and clayey fine sands.

Several borings were conducted on the top of the hills on the southwest approach to the runway and to the southeast of the proposed apron to determine the requirements for grading in these areas. In most areas fairly thick layers of white rock (gypsum) were encountered at depths ranging from 0 to 6 feet. The thickness of the rock ranged from 8 to 40 feet and was generally underlain by various sand and clay layers. Many of the soils encountered were calcareous, indicating the occurrence of carbonate cementation. The high blow count that was encountered in many areas where drive samples were taken indicates varying degrees of cementation in the materials.

No groundwater was encountered in any of the test holes at the time they were drilled.

The soil samples retained were sent to the Soil Mechanics Laboratory of R. W. Brandley in Loomis, California, for testing. Unit dry weight and moisture content of each soil sample were obtained, and these data are indicated on the Soil Profile Sheets. Unfortunately, the soils encountered were dry and friable and it was not possible to obtain a full sample or an undisturbed sample of many of the materials. In these cases unit dry weights of the materials in place could not be determined and only natural moisture content was shown.

Test pits were excavated near some of the test holes for the purpose of obtaining bulk samples of the surface materials for laboratory testing. A series of grading analysis tests were conducted and the results of these tests are included in Table No. 1. A series of compaction tests and California Bearing Ratio tests were conducted on various types of soil encountered at this site. The results of these tests are summarized in Table No. 2.

TABLE NO. 1. GRADING ANALYSIS AND ATTERBERG LIMIT TEST RESULTS

Sieve Size	Percent Passing			
	Test Hole B5 - 0' to 3'	Test Hole B15 - 0' to 4'	Test Hole B33 - 0' to 5'	Test Hole B46 - 0' to 3'
No. 4	100	97	100	100
No. 8	100	96	99	100
No. 16	99	94	98	99
No. 30	98	92	97	99
No. 50	96	86	94	98
No. 100	91	72	88	96
WASH 200	76	47	71	87
Liquid Limit	39	34	41	45
Plasticity Index	21	18	23	25
Classification	CL Medium Plastic Clay	SM Clayey Fine Sand	CL - CH Sandy Clay	CL - CH Sandy Clay

TABLE NO. 2. COMPACTION AND CALIFORNIA BEARING RATIO TESTS

Soil Classification	Test Hole	Depth from Surface - ft.	Maximum Dry Density (lb./cu.ft.)	Optimum Moisture (Percent)	CBR	
					at 90% R.C.	at 95% R.C.
Medium Plastic Clay - CL	B5	0 - 3	115	14	1.2	3
Clayey Sand - SC	B15	0 - 4	116	13	9	11
Sandy Clay - CL-CH	B33	0 - 5	117	13	3	5
Sandy Clay - CL-CH	B46	0 - 3	115	14	2	4

III. DESIGN STUDIES AND RECOMMENDATIONS

A. Introduction

The proposed development of the new Pahrump Airport requires construction that can be affected by existing soil conditions. The major construction activities on an airport that are affected by local soil conditions include:

- *Grading of the Site* – In order to provide proper grades for operation of aircraft and to provide safety for approaches and ground operations, it is necessary to grade the site to produce a relatively level or slightly sloping finished grade. At Pahrump Airport this will require significant cuts in the hills to the east and southeast of the airport site and significant embankments in the northwestern portion of the site.
- *Drainage of the Site* – The airport needs to be drained such that the paved surfaces are free from standing water and that there is no long-term accumulation of water in the infields or surrounding areas that may attract birds and create a bird-strike problem.
- *Pavement Section*s – Pavement sections must be designed to support all aircraft using the airport for forecast operations. It is normal to design the pavements to support the "design aircraft," which is defined as the largest aircraft having at least 500 operations per year. At this airport it is considered that the business jet of the Cessna Citation X category will be the design aircraft during the forecast period. This aircraft has a gross weight of approximately 45,000 pounds on dual gear.
- *Structural Foundations* – A series of structures will be constructed at the airport including airport terminal building, fixed base operator hangar and office, aircraft storage hangars of various sizes ranging from small T-hangars

to large corporate hangars, maintenance facilities, and the possible development of commercial/industrial facilities on adjacent property not required for aeronautical use.

The soils encountered at this site varied considerably and changes occurred within fairly short distances. The soils ranged from medium to highly plastic clay soils in the low-lying areas in the northwesterly portion of the site to rock consisting of cemented sands, conglomerates, or gypsum type strata in all other areas. In between these extremes, various areas consisting of sandy clays, clayey sands, and silty sands existed. Many of these were somewhat cemented. The degree of cementation also varied significantly over the site. In general, the soils are sufficiently compact that only small settlements will occur under nominal embankment loadings. The rock occurred in the hills to the southeast and east of the site, and in some of these areas portions of the hill must be removed to provide the necessary approach plane to the runway. In many instances the rock is sufficiently hard that it will require blasting to remove. All of the sand and clay soils, even though slightly cemented, can be moved with heavy-duty excavation equipment with the use of rippers in the cemented areas.

B. Grading

Preliminary grading plans have been prepared for the development of the airport. These have been developed so that there will be an approximately balanced cut and fill in the first stage development, with materials from the hilly area in the southeast and east portions of the site being used as possible borrow. Plan and profiles have been prepared and are included in this report as:

Sheet No. 11 - Along the centerline of the runway

Sheet No. 12 - Along the centerline of the parallel taxiway

Sheet No. 13 - The southwestern edge of the future apron

It will be noted that on the runway section 3 to 5 feet of fill will be required for most of the length of the runway. There is a small hill near the northeast end of the runway that requires minor cuts and smaller fills. The hills at the southeast end of the runway and beyond require cutting to provide the approach slope. The northwest end of the taxiway requires 4 to 5 feet of embankment. The remaining part of the taxiway requires minor cuts and fills, and the hills at the southeast end of the taxiway requires some cut. The apron is designed so that the planned apron section requires 1 to 3 feet of fill and the possible future apron expansion area, which is also reserved for borrow excavation if needed, is in the hilly terrain that requires significant cuts.

In general, in the fill areas the existing soils are medium plastic clays to sandy clays and in the cut areas the soils are clayey sands, silty sands and, in the hills, rock. The rock will generally require blasting to remove. All other materials can be moved with heavy-duty excavation equipment.

The access road from Gamebird Road will be constructed basically on grade with minor cuts and fills required in the high and low areas.

The test borings conducted for this study are spaced at fairly wide distances. While they, in general, represent the conditions that exist at the site, it is considered important that more detailed studies with closer spacing of borings be made during final design. This is particularly important in the hilly areas where the rock was encountered since the existence of rock in this area is unpredictable. It is necessary for proper design and construction cost estimating that more detailed studies be conducted to determine the character and extent of this rock.

C. Pavement Section

Laboratory tests were conducted on typical soils that exist at this site to determine the California Bearing Ratio (CBR) of these soils when in a saturated

condition. The results of these tests are summarized in Table No. 2. It will be noted that the medium plastic clay soils taken from the northwestern portion of the proposed runway have very low CBR values, the clayey sands have reasonably high CBR values, and the sandy clay soils are moderately low.

The Federal Aviation Administration uses the California Bearing Ratio Method of Pavement Section Design as a standard, so this method has been utilized for determination of the pavement section requirements at this site. The design criteria that was used for this analysis were:

- California Bearing Ratio of natural soil in place would be equal to the California Bearing Ratio obtained in the laboratory at a 90 percent relative compaction.
- California Bearing Ratio of the subgrade prepared during construction would be that of the soils compacted to a relative compaction of 95 percent since this density will be specified during construction.
- California Bearing Ratio of the select sand soils taken from the excavated area was assumed to be 14.
- California Bearing Ratio of aggregate subbase course was assumed to be 35.
- CBR of aggregate base course was assumed to be 100.
- Annual operations of design aircraft assumed to be 6,000.

The CBR values are based on testing soils in a saturated condition. This is appropriate, even in an arid region, because by closing off the source of evaporation by paving the area, the soils underneath a pavement section will become saturated over time.

A pavement design study was conducted for various types of aircraft use in order to show the different section requirements for each condition. Required pavement sections for aircraft carried on single-wheel gear were determined for gross aircraft weights of 12,500 pounds, 20,000 pounds, 30,000 pounds, and 40,000 pounds. The required sections were also determined for dual-gear aircraft at gross weights of 20,000 pounds, 30,000 pounds, 40,000 pounds, 50,000 pounds, and 100,000 pounds. The 12,500-pound single-gear aircraft includes all of the small single and twin engine aircraft

of the general aviation fleet. The 20,000 to 30,000-pound dual-gear aircraft include the smaller business jets and turboprop aircraft. The 40,000 to 50,000-pound dual-gear aircraft loading represents the mid-size business jet of the Cessna Citation X class. The 100,000-pound dual-gear loading represents the heavier business jets of the Gulfstream V category. In Table No. 3 is presented the total pavement section requirements over the natural soil without compaction and over the subgrade soil that has been compacted to 95 percent relative compaction for the four different classes of aircraft. It will be noted that the total thickness requirement over the subsoil is significantly larger than that over the compacted subgrade material in many instances. Since only six inches of subgrade soil will be recompacted, it would require placing the required section over the top of the compacted subgrade or the natural soil, whichever is greater.

Using the total section requirements set forth in Table No. 3, a study was conducted to determine the actual pavement section requirements for each scenario and each type of soil. The results of these studies are shown in Table No. 4. In this table the total thickness of each layer of bituminous surface course, aggregate base course, aggregate subbase course, select sand, and compacted subgrade is indicated for each category of airplane. It will be noted that the northwest end of the runway, Sta. 0+00 to 36+00, where medium plastic clay soils exist as subgrade, requires significant thicknesses of total section, but that the thickness of asphalt, base and subbase does not vary much with the loading of the aircraft. The main variable is in the thickness of select sand required on top of the subgrade materials. In the northwestern 3,600 feet of runway where the medium plastic clay soils exist there will be 4 to 5 feet of fill placed in most areas to bring the area to finished grade. Since all excavation materials will fit the select sand category, there will automatically be 3 feet of select sand on top of these materials before the pavement section is placed, provided in a few isolated areas some of the ridges are excavated in the pavement section only.

TABLE NO. 3. TOTAL PAVEMENT SECTION THICKNESS REQUIREMENTS

Test Hole No.	Relative Compaction %	CBR	Total Section Required Above Subgrade - inches Single Wheel Gear at Total Weight - kips				Total Section Required Above Subgrade - inches Dual Wheel Gear at Total Weight - kips				
			12.5	20	30	40	20	30	40	50	100
B5	90	1.2	27	31	35	40	32	36	40	45	60
	95	3	16	19	25	28	18	21	24	28	42
B15	90	9	8	11	13	15	9	11	12	14	21
	95	11	7	10	12	13	8	10	11	12	19
B33	90	3	16	19	25	28	18	21	24	28	42
	95	5	13	15	18	22	14	15	17	20	30
B46	90	2	20	23	25	29	22	24	28	32	47
	95	4	14	17	21	26	15	19	22	26	35
ASB		20	4	5	6	7	4	5	6	7	12

TABLE NO. 4. PAVEMENT SECTION RECOMMENDATIONS

Location	Station	Subsoil Classification	Design Subsoil CBR		Design Aircraft Gross Weight - Kips		Recommended Pavement Section - inch					
			90% RC	95% RC	Dual Gear	Single Gear	AC	AB	ASB	Select Sand	S&R Subsoil	Total
Runway	0+00 to 36+00	Medium Plastic Clay	1.2	3	18	12.5	3	6	5	7	6	27
					30	20	3	7	5	15	6	36
					40	28	4	8	6	16	6	40
					50	32	4	9	6	20	6	45
					100	50	4	10	6	34	6	60
Runway	36+00 to 60+00	Clayey Sand to Silty Fine Sand	3	5	18	12.5	3	6	5	0	6	18
					30	20	3	7	5	0	6	21
					40	28	4	8	6	0	6	24
					50	32	4	9	6	3	6	28
					100	50	4	10	6	16	6	42
Parallel Taxiway	0+00 to 60+00	Silty Sand to Sandy Clay	3	5	18	12.5	3	6	5	0	6	18
					30	20	3	7	5	0	6	21
					40	28	4	8	6	0	6	24
					50	32	4	9	6	3	6	28
					100	50	4	10	6	16	6	42
Apron	0+00 to 24+00	Silty Sand to Sandy Clay	2	4	18	12.5	3	6	5	2	6	22
					30	20	3	7	5	3	6	24
					40	28	4	8	6	4	6	28
					50	32	4	9	6	9	6	32
					100	50	4	10	6	21	6	47
Road		Sandy Clay	2	4	H20	--	3	8	6	5	6	28

In the southeastern portion of the runway, the parallel taxiway, and the apron section the total thickness of pavement section above the existing soil required for a 100,000-pound airplane on dual gear requires 42 to 47 inches, which relates to 36 to 41 inches above subgrade level. In most of these areas the grading requirements also call for 2 to 3 feet of fill to be placed, which will automatically provide the select sand section required, even for the 100,000-pound aircraft. In a few areas it may require some modest excavation in the pavement section only to provide this additional fill.

Even though the design aircraft today and for the foreseeable future is a 40,000-pound aircraft on dual gear, the extra cost of preparing the section to accommodate a 100,000-pound airplane on dual gear in the future is extremely small and will only require excavation of existing soils in a few minor areas throughout the site. It is, therefore, recommended that the grading of the site be performed such that the areas where the pavement sections are to be placed will be excavated where necessary to such depth as to allow the full pavement section for the 100,000-pound aircraft on dual gear to be placed. The fill under the pavement section should be carefully selected from the excavation areas to place the cleaner sand soils under the pavement sections and the clayey materials in the infields. These sand soils should be compacted to a relative compaction of 95 percent after the prepared subgrade has been scarified and recompacted to a relative compaction of 95 percent.

After this preparation has been completed for the paved areas, then the remaining pavement section placed can be that required for the 40,000-pound aircraft on dual gear. When the 100,000-pound airplane becomes the critical aircraft, the pavement can be strengthened to accommodate that airplane by merely placing a 2-inch overlay of bituminous surface course. As an alternative, the additional 2 inches of aggregate base course required for the 100,000-pound airplane could be installed during initial

construction, and the airport would be prepared for the 100,000-pound airplane operations immediately after construction. It is considered advisable to design with the thinner base section and plan for the overlay in 10 to 20 years since an overlay will no doubt be required by that time due to weathering of the pavement surface.

If the thickness of select sand fill placed today is only that required for the 40,000-pound dual-gear aircraft, then when the design has to be increased to accommodate the 100,000-pound dual-gear aircraft, it will be necessary to reconstruct the section. As a minimum it would be necessary to pulverize the existing pavement and base materials and place an additional 6 inches of new aggregate base and 4 inches of new bituminous surface course on top, all of which would be extremely expensive.

Based on these recommendations, the specific treatment for each section of pavement is specified below:

1. *Runway - Sta. 0+00 to 36+00 (northwestern 3,600 feet)* – Excavate as necessary in the pavement section to the design top of subgrade, which is 54 inches below finished grade, which will provide 60 inches to native uncompacted soil. Pavement section recommended:

Asphaltic Concrete	4”
Aggregate Base	10”
Aggregate Subbase	6”
Select Sand	34”
Scarify & Recompact Subgrade	6”
Total	60”

2. *Runway Sta. 36+00 to 60+00 (southeastern 2,400 feet)* – Excavate as necessary such that top of subgrade is 36 inches below finished grade, which will provide 42 inches over natural soil. Pavement section recommended:

Asphaltic Concrete	4”
Aggregate Base	10”
Aggregate Subbase	6”
Select Sand	16”
Scarify & Recompact Subgrade	6”
Total	42”

3. *Parallel Taxiway* – Excavate where necessary under the pavement section so the top of subgrade is 36 inches below finished grade, which will provide 42 inches over natural soil. Pavement section recommended:

Asphaltic Concrete	4”
Aggregate Base	10”
Aggregate Subbase	6”
Select Sand	16”
Scarify & Recompact Subgrade	6”
Total	42”

4. *Aircraft Parking Apron for Jet Aircraft – 40,000 Pound Dual Gear* – Excavate as necessary such that top of subgrade is 41 inches below finished grade, which provides 47 inches of material over natural soil. Pavement section recommended:

Asphaltic Concrete	4”
Aggregate Base	10”
Aggregate Subbase	6”
Select Sand	21”
Scarify & Recompact Subgrade	6”
Total	47”

5. *General Aviation Apron Parking – 12,500 Pound Gross Loading on Single Gear = 18,000 Pound Gross Loading on Dual Gear* – Excavate as necessary such that top of subgrade is 16 inches below finished grade, which provides 22 inches of material over natural soil. Pavement section recommended:

Asphaltic Concrete	3”
Aggregate Base	6”
Aggregate Subbase	5”
Select Sand	2”
Scarify & Recompact Subgrade	6”
Total	22”

6. *Access Road – H20 Loading, Dual Wheel* – Excavate as required so that top of subgrade is 22 inches below finished grade, which provides 28 inches above natural soil. Pavement section recommended:

Asphaltic Concrete	3”
Aggregate Base	8”
Aggregate Subbase	6”
Select Sand	5”
Scarify & Recompact Subgrade	6”
Total	28”

With all of these sections a 2-inch asphalt overlay will increase the load-carrying characteristics of these sections to 100,000-pound aircraft on dual gear. It will also allow infrequent use of 100,000-pound aircraft on dual gear without the overlay in the initial stage.

It is recommended that the aggregate base course used for this section meet F.A.A. requirements for crushed aggregate base course set forth in the F.A.A. Standard Specifications under Item P-209 with the added requirement that the CBR at 100 percent relative compaction be in excess of 100. The aggregate subbase course should meet F.A.A. Specification requirements under Item P-154 with the added requirement that it have a CBR at a relative compaction of 98 percent of 35. The bituminous surface course should be Marshall mix design meeting F.A.A. Standard Specification requirements under Item P-401 with the added requirement that the grading of the aggregate be held on the coarse side of the maximum density curve for the aggregate used.

The rock (gypsum) that was encountered in several of the borings in the cut sections appears to be a hard, durable product. During the design phase of this project it is recommended that not only the extent of rock available be investigated, but the quality of the rock be evaluated to determine whether it would be suitable for use as

aggregate base course. If so, the contractor should be allowed the opportunity to set up a crushing plant on site and process the aggregate base course for the project.

D. Buildings

The soils in the proposed building area range from sandy clays to clayey sands to silty fine sands. If the building area expands to the southeast, in some areas the rock extends to a point near the surface. The rock is very stable and will support all structures with high bearing values; however, the existence of rock in this area is irregular. Prior to constructing any foundations in this area, additional borings should be made to determine the location of the surface of the rock, the thickness of the rock, and the existence of the rock.

It is not recommended that a portion of the building be located on rock and the other portion be located on natural soils. Severe differential settlements could occur. In general, where rock appears under one portion of the building and not another, the rock is removed from that portion of the building where it exists and the area backfilled with compacted embankment materials. In all other areas where the rock does not exist the soils are reasonably compact or lightly cemented, except for the surface 6 to 12 inches, and will generally support moderate foundation loadings.

Footings for significant structures should be carried to minimum depths of 2 to 3 feet. For light hangars for small aircraft, minimum depth of footing should be 1½ to 2 feet.

The soil borings and explorations taken at this time are for general information of the site. For any building construction and detailed pavement design, it is recommended that detailed soil investigations be conducted for each structure.

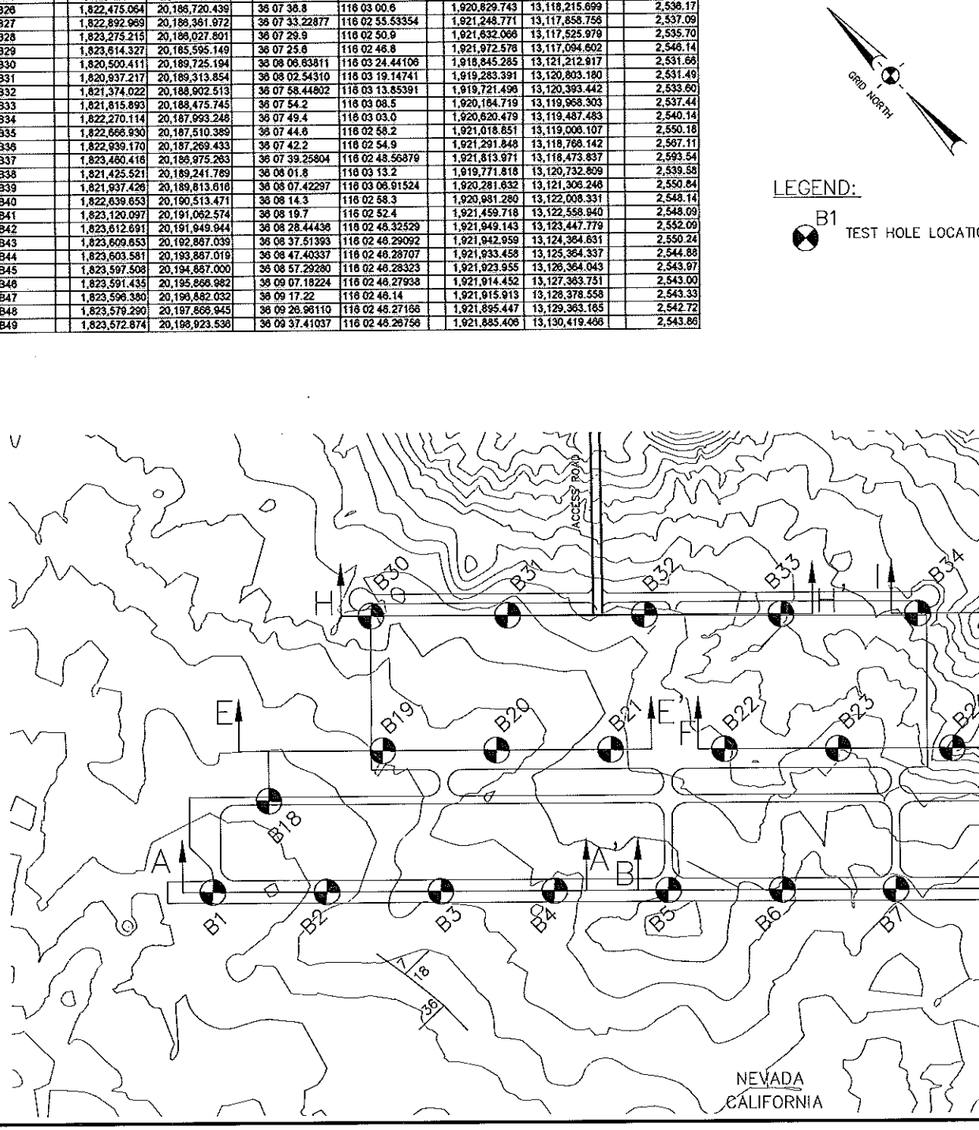
Reinard W. Brandley

RWB:aw

Proposed Locations for Soil Borings - Pahrump, Nevada - Site C

1/7/2008

Test Hole #	Nevada State Grid (2702 Nevada Central) Easting (feet)	Northing (feet)	Geographic Coordinates (NAD 83) Latitude N (Deg min sec)	Longitude W (Deg min sec)	UTM (Zone 11) Easting (feet)	Northing (feet)	Elevation Existing Grade
B1	1,819,160.699	20,189,327.213	36 08 02.78521	116 03 40.80407	1,917,507.279	13,120,810.442	2,520.00
B2	1,819,548.619	20,188,997.434	36 07 59.5	116 03 36.1	1,917,896.232	13,120,482.073	2,523.04
B3	1,819,888.708	20,188,841.846	36 07 55.96050	116 03 31.98113	1,918,237.455	13,120,127.546	2,526.37
B4	1,820,250.393	20,188,273.763	36 07 52.3	116 03 27.6	1,918,600.309	13,119,760.995	2,526.50
B5	1,820,618.717	20,187,956.078	36 07 49.13559	116 03 23.15860	1,918,967.630	13,119,444.650	2,530.14
B6	1,820,980.722	20,187,613.295	36 07 45.72308	116 03 18.74750	1,919,332.718	13,119,103.202	2,529.55
B7	1,821,372.209	20,187,289.845	36 07 42.5	116 03 14.0	1,919,725.215	13,118,781.182	2,526.97
B8	1,821,708.731	20,186,927.728	36 07 38.89792	116 03 09.92561	1,920,062.893	13,118,420.307	2,528.03
B9	1,822,041.002	20,186,608.457	36 07 35.7	116 03 05.9	1,920,396.182	13,118,100.260	2,529.61
B10	1,822,436.741	20,186,242.160	36 07 32.07257	116 03 01.10414	1,920,793.070	13,117,737.409	2,531.97
B11	1,822,800.745	20,185,899.377	36 07 28.65984	116 02 56.69357	1,921,158.157	13,117,395.962	2,534.00
B12	1,818,249.387	20,185,541.182	36 07 25.4	116 02 52.2	1,916,609.185	13,117,022.248	2,536.28
B13	1,823,528.754	20,185,213.809	36 07 21.83422	116 02 47.87275	1,921,888.332	13,116,713.064	2,545.08
B14	1,818,825.766	20,185,200.954	36 07 22.0	116 02 45.2	1,917,186.583	13,116,684.081	2,558.98
B15	1,824,089.631	20,185,010.035	36 07 19.78360	116 02 41.05194	1,922,449.766	13,116,511.265	2,560.00
B16	1,824,581.639	20,184,518.596	36 07 14.89245	116 02 35.09318	1,922,943.334	13,116,021.638	2,560.00
B17	1,825,068.959	20,184,208.850	36 07 11.79845	116 02 29.20191	1,923,429.594	13,115,713.635	2,570.00
B18	1,819,618.927	20,189,447.024	36 08 03.94191	116 03 35.23303	1,917,962.980	13,120,931.787	2,522.65
B19	1,820,130.083	20,189,262.625	36 08 02.08659	116 03 28.99115	1,918,476.638	13,120,749.195	2,526.19
B20	1,820,494.087	20,188,919.841	36 07 58.67413	116 03 24.57979	1,918,841.725	13,120,407.747	2,526.22
B21	1,820,858.092	20,188,577.058	36 07 55.26164	116 03 20.16852	1,919,206.814	13,120,066.300	2,530.93
B22	1,821,222.097	20,188,234.274	36 07 51.84909	116 03 15.75735	1,919,571.902	13,119,724.852	2,533.38
B23	1,821,586.101	20,187,891.491	36 07 48.43651	116 03 11.34630	1,919,936.989	13,119,383.404	2,532.20
B24	1,821,950.106	20,187,548.707	36 07 45.02387	116 03 06.93535	1,920,302.077	13,119,041.956	2,540.97
B25	1,822,314.111	20,187,205.923	36 07 41.61118	116 03 02.52450	1,920,667.166	13,118,700.507	2,536.26
B26	1,822,475.064	20,186,720.439	36 07 36.8	116 03 00.6	1,920,829.743	13,118,215.699	2,536.17
B27	1,822,892.969	20,186,361.972	36 07 33.22877	116 02 55.53354	1,921,248.771	13,117,858.756	2,537.09
B28	1,823,275.215	20,186,027.801	36 07 29.9	116 02 50.9	1,921,632.066	13,117,525.979	2,535.70
B29	1,823,614.327	20,185,595.149	36 07 25.6	116 02 46.6	1,921,972.578	13,117,094.602	2,546.14
B30	1,820,500.411	20,189,725.194	36 08 06.63811	116 03 24.44106	1,918,845.285	13,121,212.917	2,531.66
B31	1,820,937.217	20,189,313.854	36 08 02.54310	116 03 19.14741	1,919,283.391	13,120,803.180	2,531.49
B32	1,821,374.022	20,188,902.513	36 07 58.44802	116 03 13.85391	1,919,721.496	13,120,393.442	2,533.60
B33	1,821,815.893	20,188,475.745	36 07 54.2	116 03 08.5	1,920,164.719	13,119,968.303	2,537.44
B34	1,822,270.114	20,187,993.246	36 07 49.4	116 03 03.0	1,920,620.479	13,119,487.483	2,540.14
B35	1,822,666.930	20,187,510.389	36 07 44.6	116 02 58.2	1,921,018.851	13,119,006.107	2,550.18
B36	1,822,939.170	20,187,269.433	36 07 42.2	116 02 54.9	1,921,291.848	13,118,766.142	2,547.11
B37	1,823,480.416	20,186,975.263	36 07 39.25804	116 02 48.56879	1,921,813.971	13,118,473.837	2,593.54
B38	1,821,425.521	20,189,241.789	36 08 01.8	116 03 13.2	1,919,771.818	13,120,732.809	2,539.58
B39	1,821,937.426	20,189,813.616	36 08 07.42297	116 03 06.91524	1,920,281.632	13,121,306.246	2,550.84
B40	1,822,639.653	20,190,513.471	36 08 14.3	116 02 58.3	1,920,981.280	13,122,008.331	2,548.14
B41	1,823,120.097	20,191,062.574	36 08 19.7	116 02 52.4	1,921,459.718	13,122,558.940	2,548.09
B42	1,823,612.691	20,191,649.944	36 08 25.44436	116 02 46.32529	1,921,949.143	13,123,447.779	2,552.09
B43	1,823,609.653	20,192,867.039	36 08 37.51393	116 02 46.29092	1,921,942.959	13,124,364.631	2,550.24
B44	1,823,603.581	20,193,867.019	36 08 47.40337	116 02 46.28707	1,921,933.458	13,125,364.337	2,544.88
B45	1,823,597.508	20,194,867.000	36 08 57.29280	116 02 46.28323	1,921,923.955	13,126,364.043	2,543.97
B46	1,823,591.435	20,195,866.982	36 09 07.18224	116 02 46.27938	1,921,914.452	13,127,363.751	2,543.00
B47	1,823,596.390	20,196,882.032	36 09 17.22	116 02 46.14	1,921,915.913	13,128,378.558	2,543.33
B48	1,823,579.290	20,197,866.945	36 09 26.96110	116 02 46.27166	1,921,895.447	13,129,363.165	2,542.72
B49	1,823,572.874	20,198,923.536	36 09 37.41037	116 02 46.26756	1,921,885.406	13,130,419.466	2,543.86



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NO.	REVISIONS	BY	APP.	DATE
1	REV. TABLE	TAS	RWB	1/7/08

PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

SITE C - SOIL BORING LAYOUT PLAN

DESIGN BY:	DB
DRAWN BY:	DMB
CHKD BY:	RWB
DATE:	APRIL 10, 2008
CONTRACT No.	-
PROJECT NO:	0102
DWG FILE:	TEST HOLES
DRAWING SCALE:	1"=300'

SHEET NUMBER
1 OF 13 SHEETS

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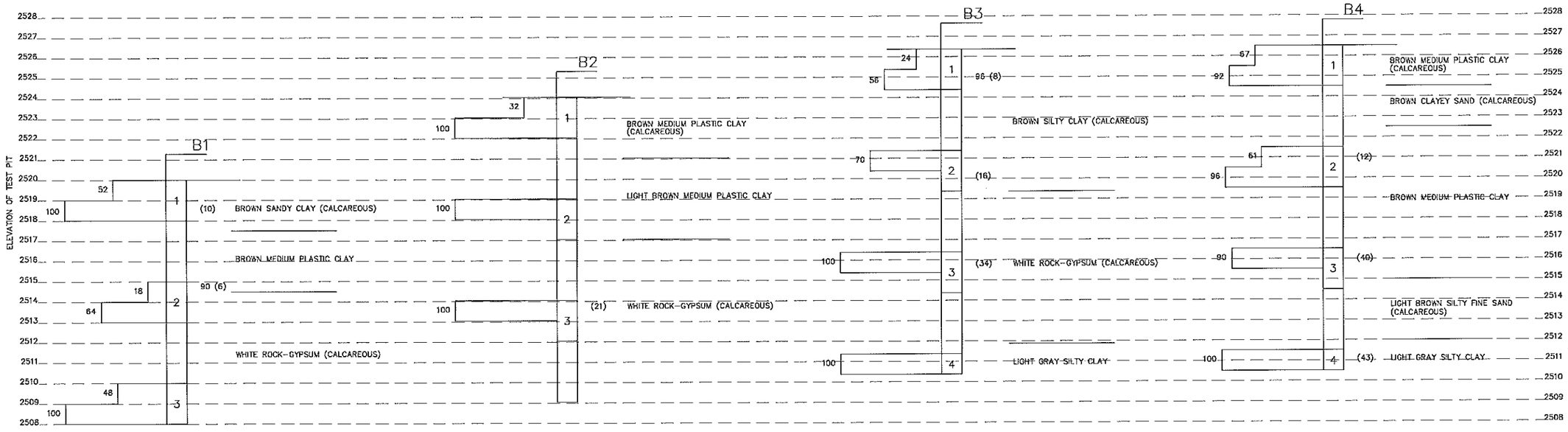
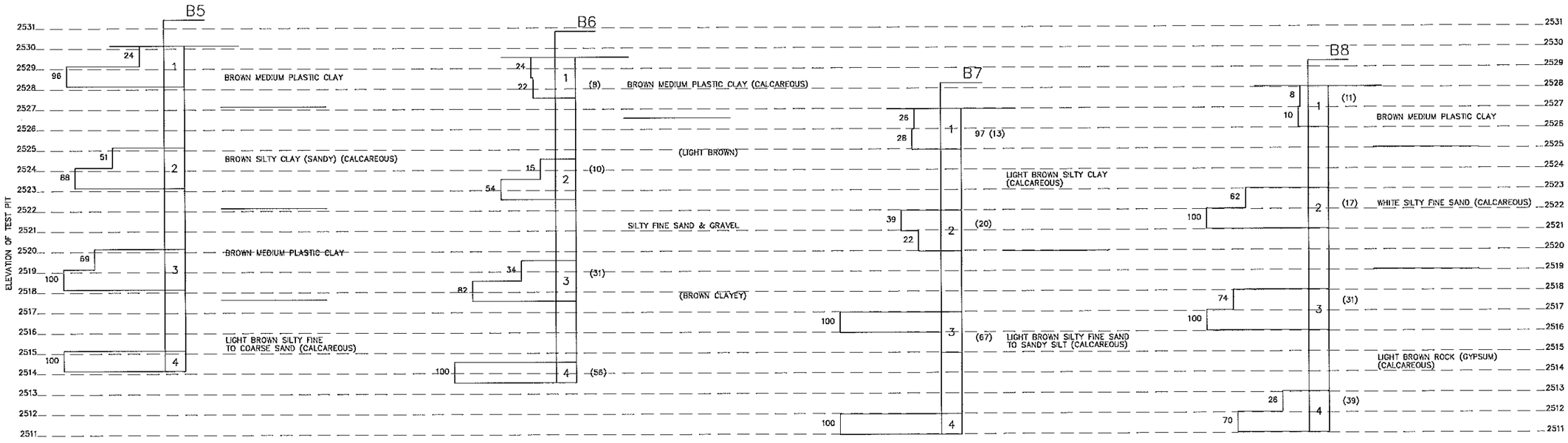
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



PROFILE A-A'



PROFILE B-B'

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NO.	REVISIONS	BY	APP	DATE

PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 1

DESIGN BY: DB
DRAWN BY: DMB
CHK'D BY: RWB
DATE: APRIL 10, 2008
CONTRACT No. -
PROJECT NO: 0102
DWG FILE: TEST HOLES
DRAWING SCALE: 1"=50'

SHEET NUMBER
2 OF 13 SHEETS

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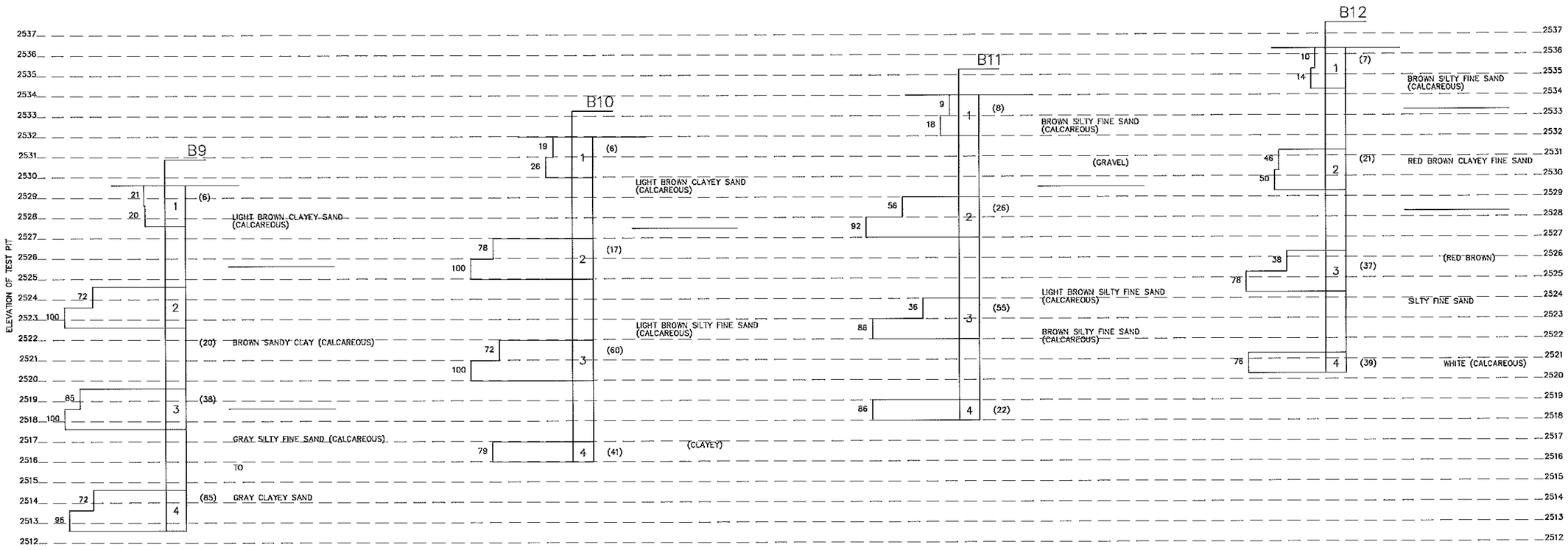

PROFILE C–C'

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ENGINEER OF RECORD

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PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 2

DESIGN BY: DB
DRAWN BY: DMB
CHK'D BY: RWB
DATE: APRIL 10, 2008
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PROJECT NO: 0102
DWG FILE: TEST HOLES
DRAWING SCALE: 1"=50'

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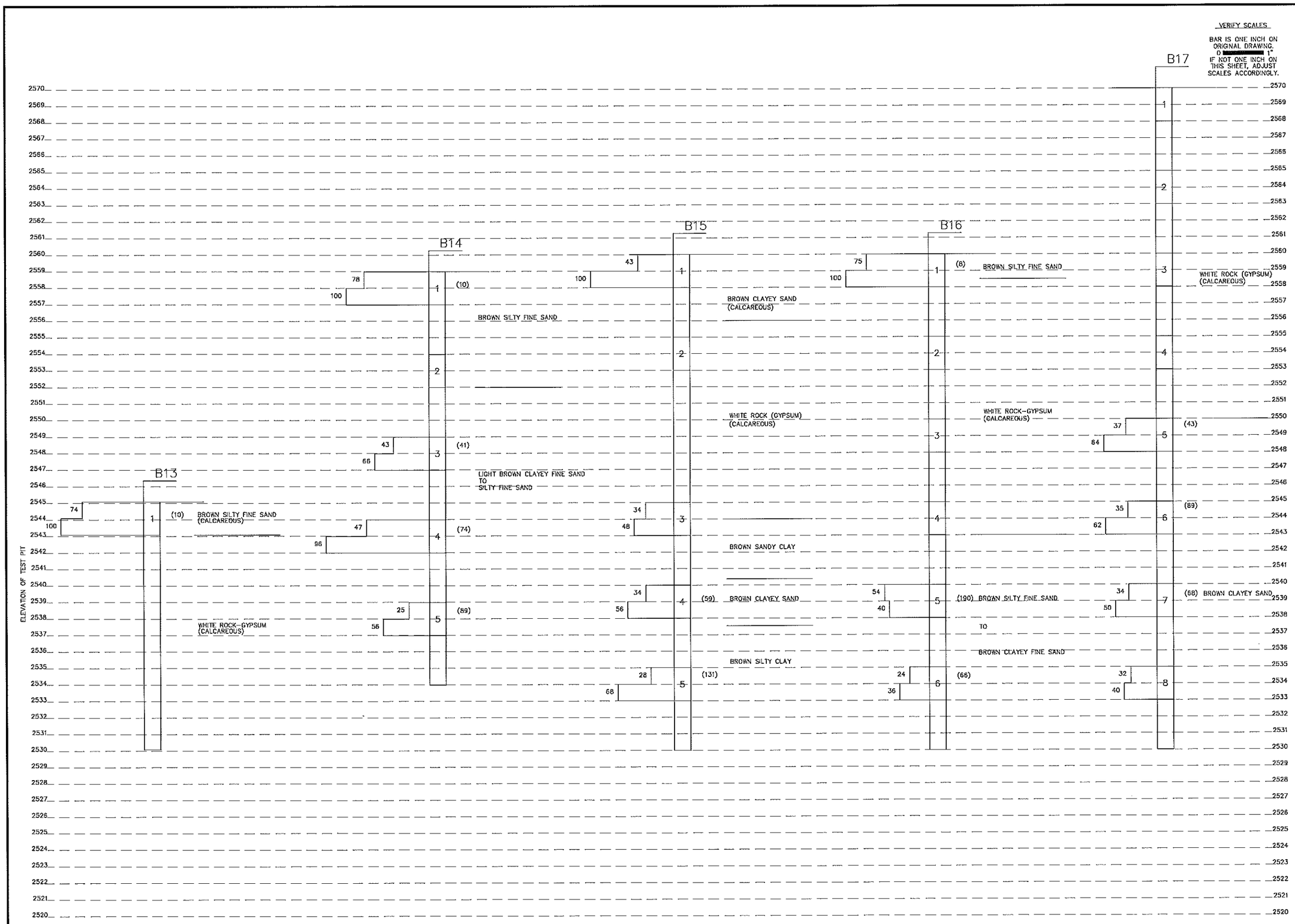
3 OF 13 SHEETS



PROFILE D-D'

Reinard W. Brandley
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ENGINEER OF RECORD

REINARD W. BRANDLEY — REGISTERED PROFESSIONAL ENGINEER — No. C 9514 — Exp. 1-31-2009 — CIVIL — STATE OF CALIFORNIA

NO.	REVISIONS	BY	APR	DATE

PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 3

DESIGN BY:	DB
DRAWN BY:	DMB
CHKD BY:	RWB
DATE:	APRIL 10, 2008
CONTRACT No.	-
PROJECT NO:	0102
DWG FILE:	TEST HOLES
DRAWING SCALE:	1"=50'

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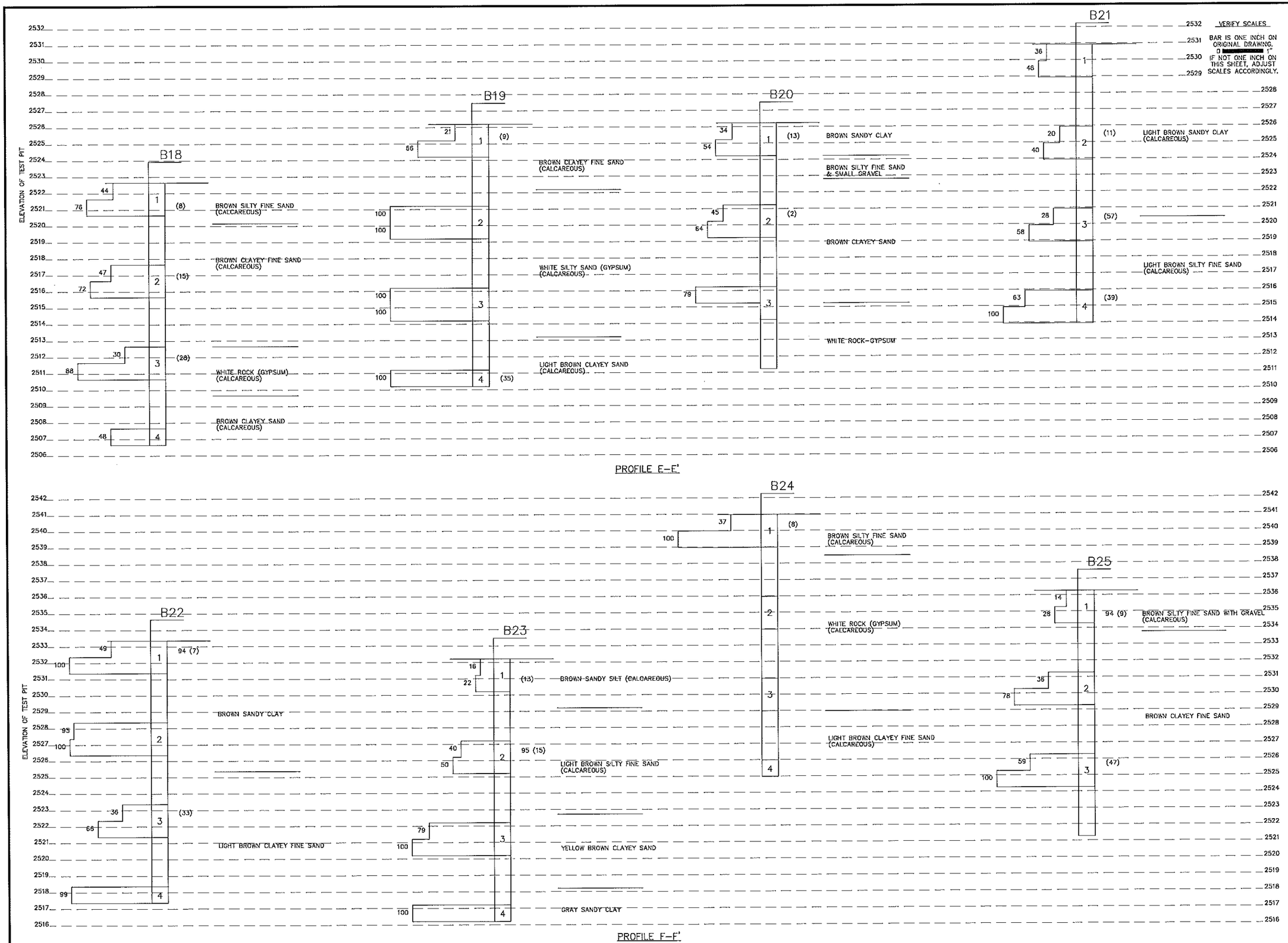
4 OF 13 SHEETS



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REVISIONS

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PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 4

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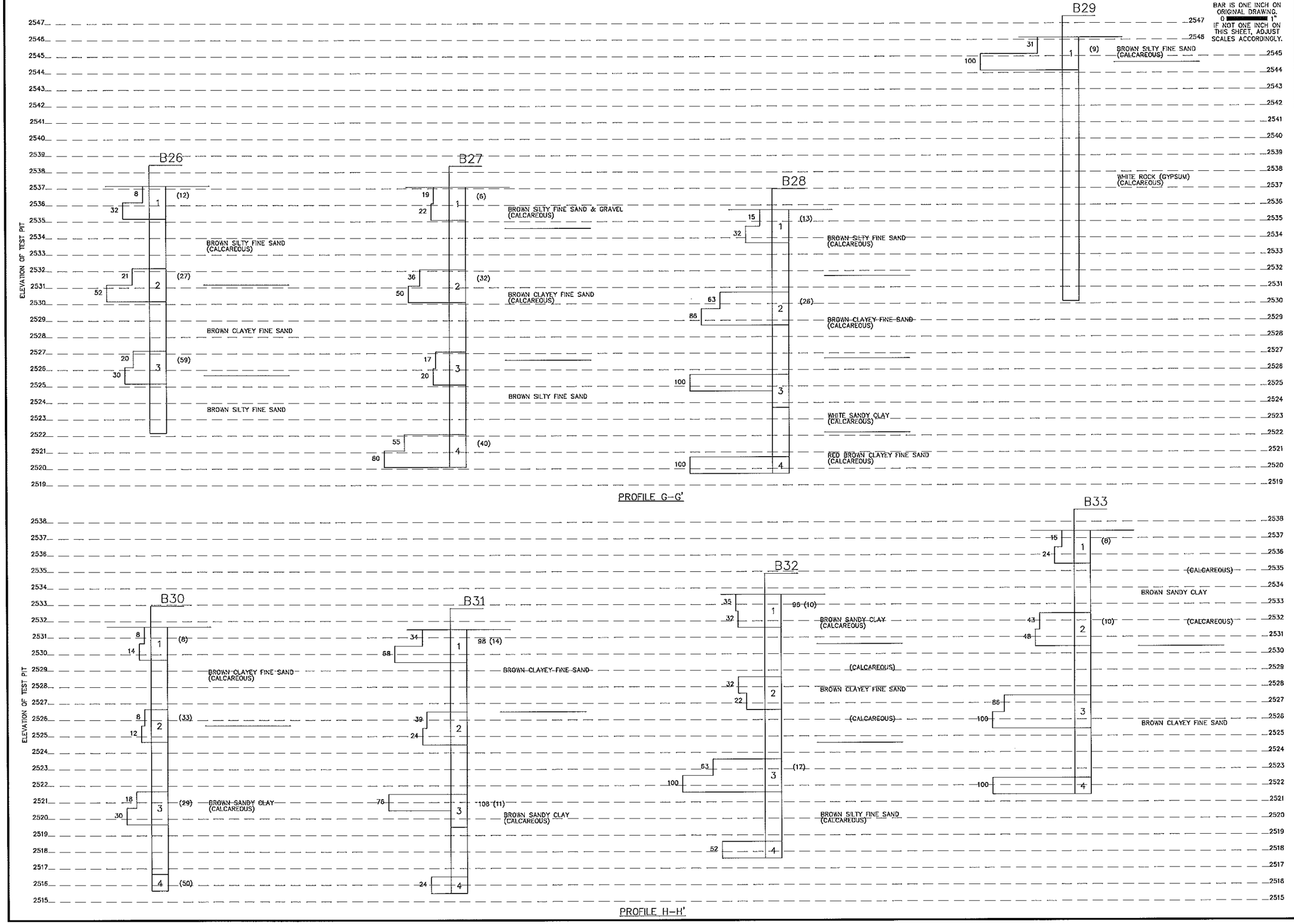
DRAWN BY:	DMB
CHK'D BY:	RWB
DATE:	APRIL 10, 2008
CONTRACT No.	-
PROJECT NO:	0102
DWG FILE:	TEST HOLES
DRAWING SCALE:	1"=50'

SHEET NUMBER
5 OF 13 SHEETS



VERIFY SCALES

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ENGINEER OF RECORD

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PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 5

DESIGN BY: DB	
DRAWN BY: DMB	
CHK'D BY: RWB	
DATE: APRIL 10, 2008	
CONTRACT No. -	
PROJECT NO: 0102	
DWG FILE: TEST HOLES	
DRAWING SCALE: 1"=50'	
SHEET NUMBER	
6 OF 13 SHEETS	

VERIFY SCALES

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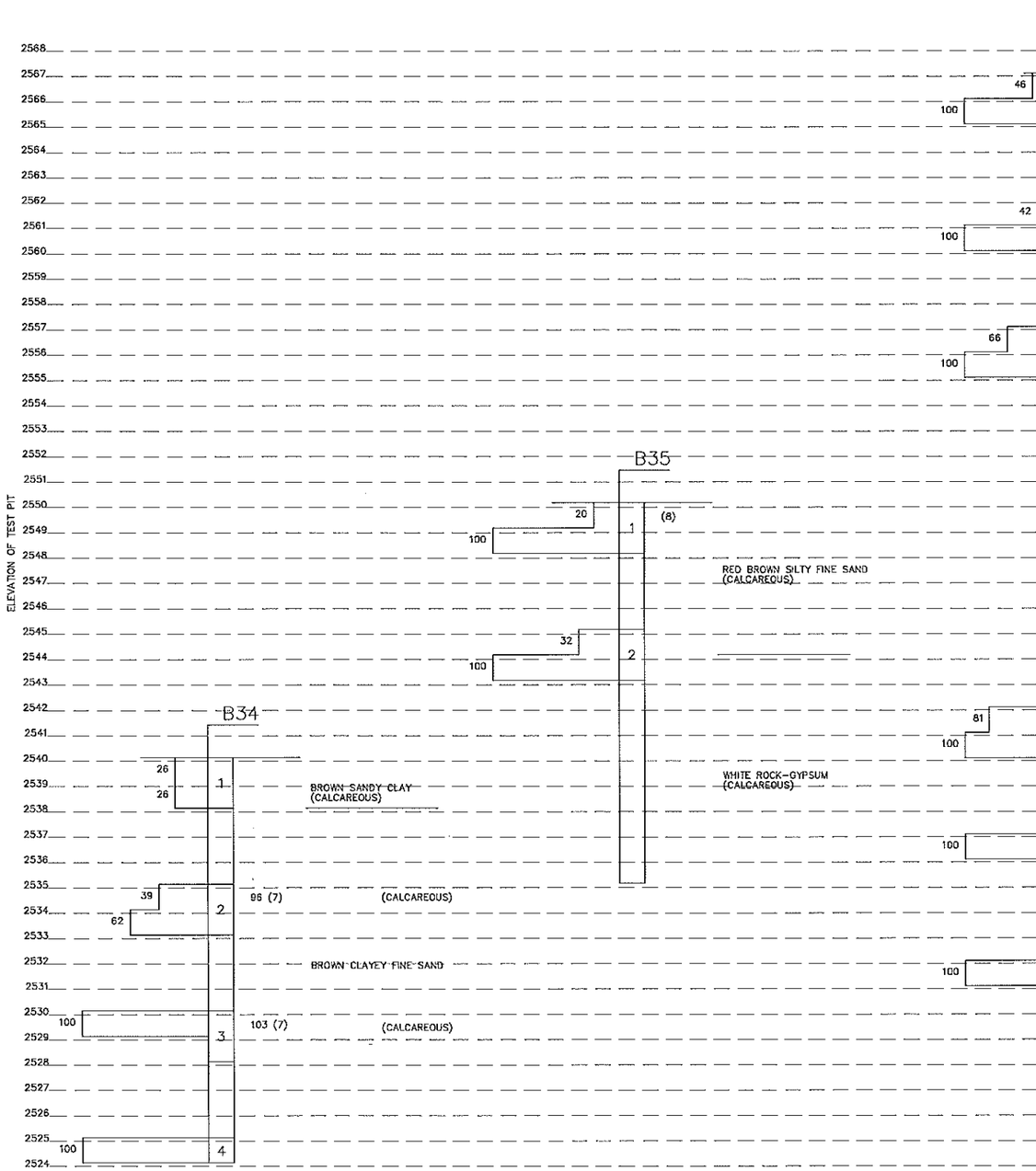

PROFILE I–I'

PROFILE J–J'

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REGISTERED PROFESSIONAL ENGINEER REINARD W. BRANDLEY No. C 6614 Exp. 6-30-2009 STATE OF CALIFORNIA

ENGINEER OF RECORD

NO.	REVISIONS	BY	APR	DATE

PAHRUMP VALLEY AIRPORT

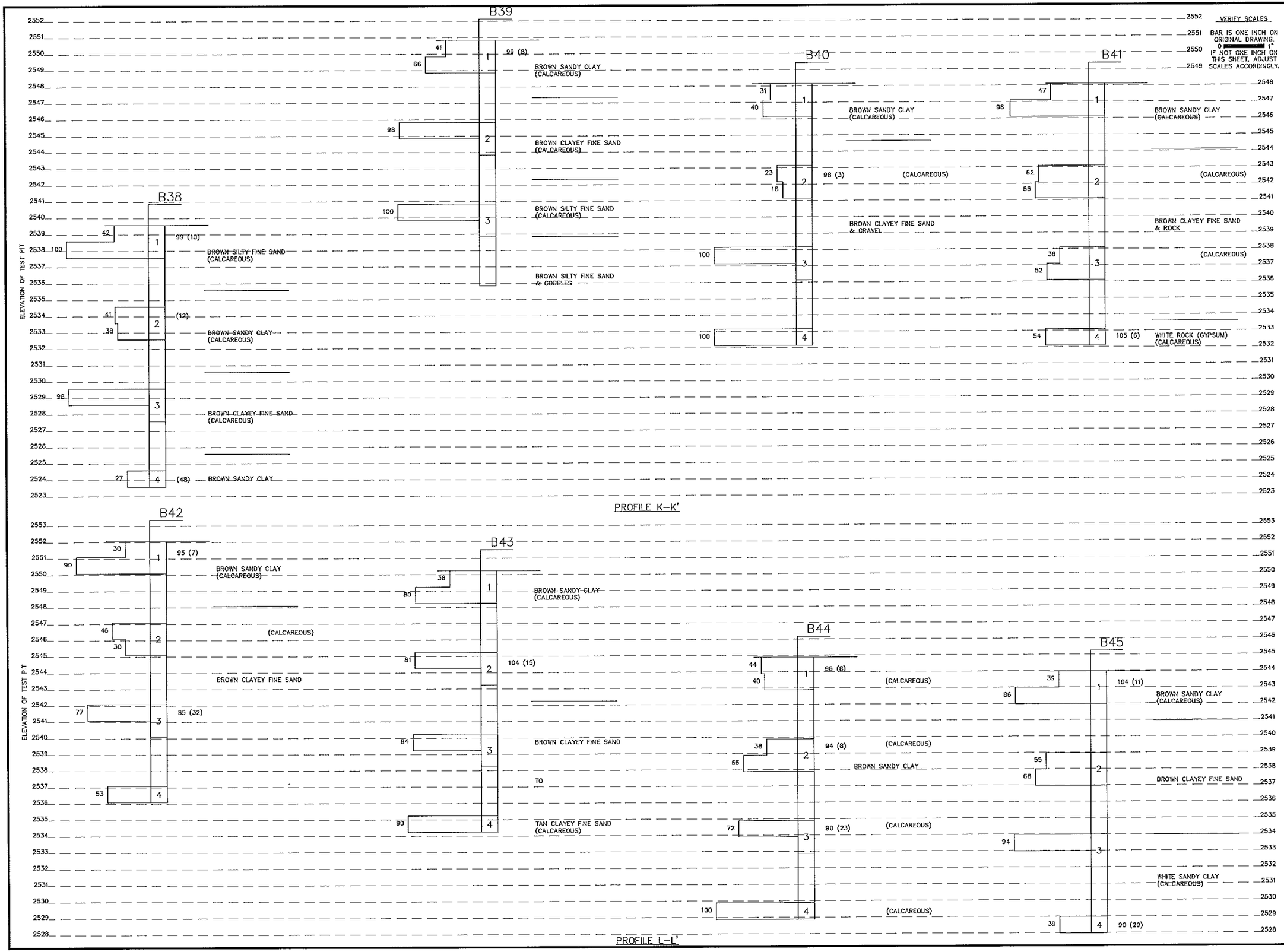
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 6

DESIGN BY: DB
DRAWN BY: DMB
CHK'D BY: RWB
DATE: APRIL 10, 2008
CONTRACT No. -
PROJECT NO: 0102
DWG FILE: TEST HOLES
DRAWING SCALE: 1"=50'

SHEET NUMBER
7 OF 13 SHEETS



PROFILE K–K'

PROFILE L–L'

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

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ENGINEER OF RECORD

REGISTERED PROFESSIONAL ENGINEER * REINARD W. BRANDLEY * No. C 6514 * Exp. 9-30-2008 * CIVIL * STATE OF CALIFORNIA *

NO.	REVISIONS	BY	APR	DATE

PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 7

DESIGN BY:	DB
DRAWN BY:	DMB
CHK'D BY:	RWB
DATE:	APRIL 10, 2008
CONTRACT No.	-
PROJECT NO:	0102
DWG FILE:	TEST HOLES
DRAWING SCALE:	1"=50'

SHEET NUMBER
8 OF 13 SHEETS

VERIFY SCALES

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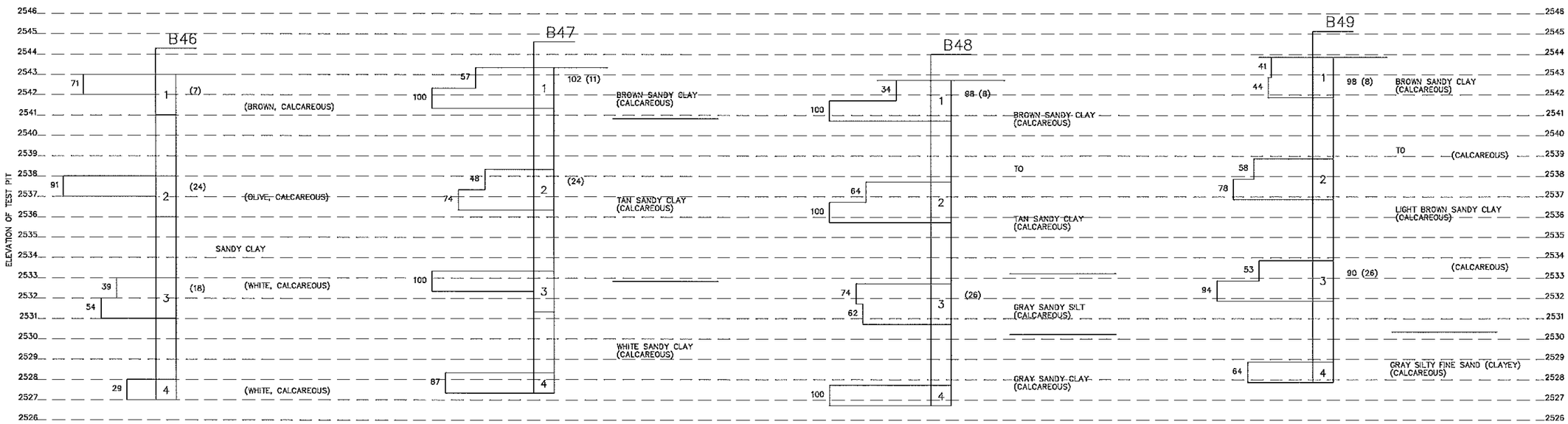
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



PROFILE M–M'

Reinard W. Brandley
CONSULTING AIRPORT ENGINEER
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ENGINEER OF RECORD

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NO.	REVISIONS	BY	APR.	DATE

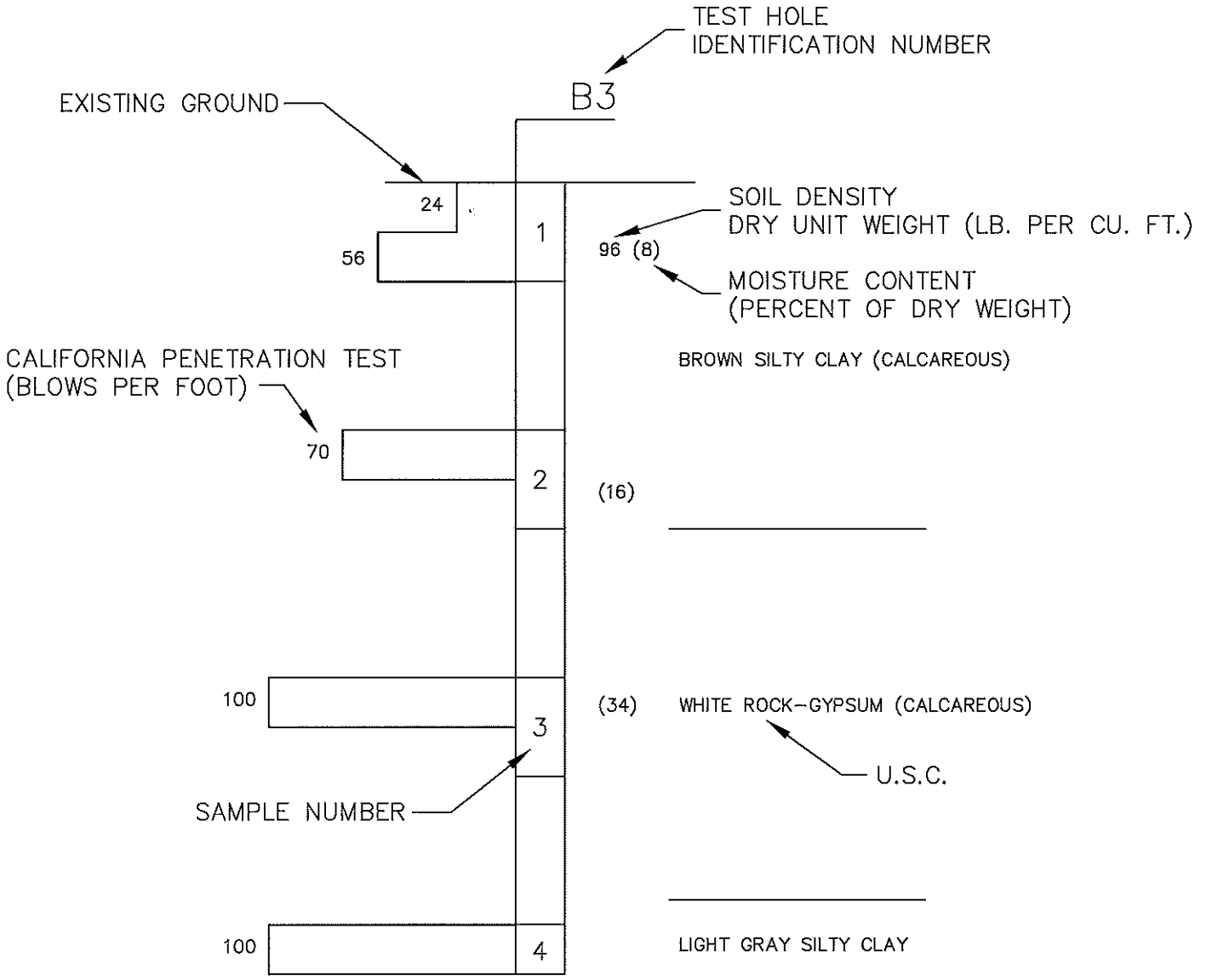
PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION

TEST HOLE LOGS SHEET No. 8

DESIGN BY:	DB
DRAWN BY:	DMB
CHK'D BY:	RWB
DATE:	APRIL 10, 2008
CONTRACT No.	-
PROJECT NO:	0102
DWG FILE:	TEST HOLES
DRAWING SCALE:	1"=50'

SHEET NUMBER
9 OF 13 SHEETS



SOIL PROFILE LEGEND

Reinard W. Brandley
CONSULTING AIRPORT ENGINEER
6125 King Road, Suite 201 • Loomis, California 95650-8004 • (916) 652-4725

NYE COUNTY
STATE OF NEVADA

PAHRUMP VALLEY AIRPORT

PAHRUMP, NEVADA

SOIL PROFILE LEGEND

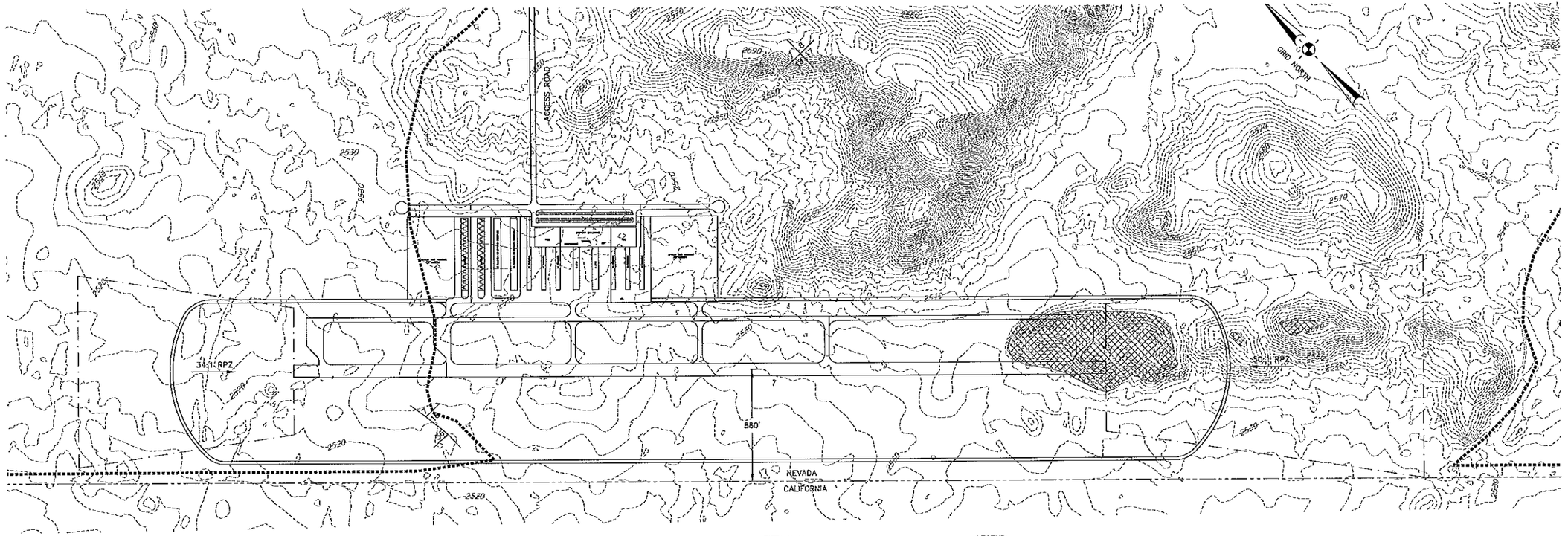
SCALE
NO SCALE

DATE APRIL 10, 2008

SHEET NUMBER
10 OF 13 SHEETS

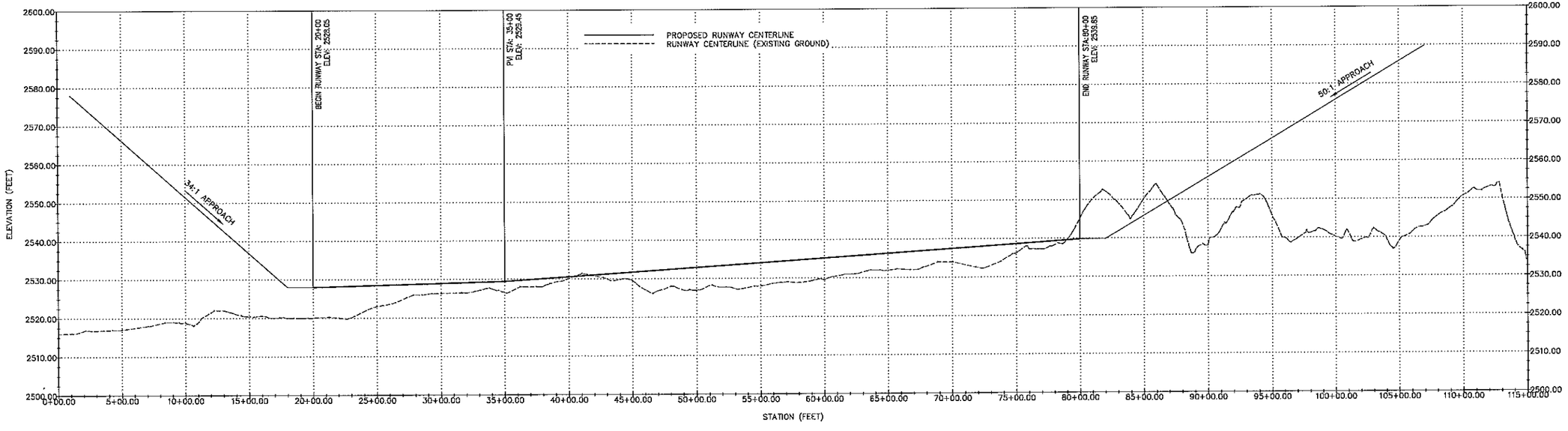
VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



SITE C PLAN

LEGEND:
- 2530 EXISTING GROUND CONTOUR
- STATE LINE
- RPZ BOUNDARY
- FLOOD PLAIN BOUNDARY
- 7 | 8 / 18 | 17 SECTION CORNER
- FAR PART 77 OBSTRUCTIONS



SITE C PROFILE

Reinard W. Brandley
CONSULTING AIRPORT ENGINEER
9125 King Road, Suite 201 • Loomis, California 95650-0254 • (916) 652-4725

REGISTERED PROFESSIONAL ENGINEER * REINARD W. BRANDLEY * No. C 8944 Ex. 9-30-2006 * CIVIL * STATE OF CALIFORNIA

ENGINEER OF RECORD

NO.	REVISIONS	BY	APR	DATE

PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION STUDY

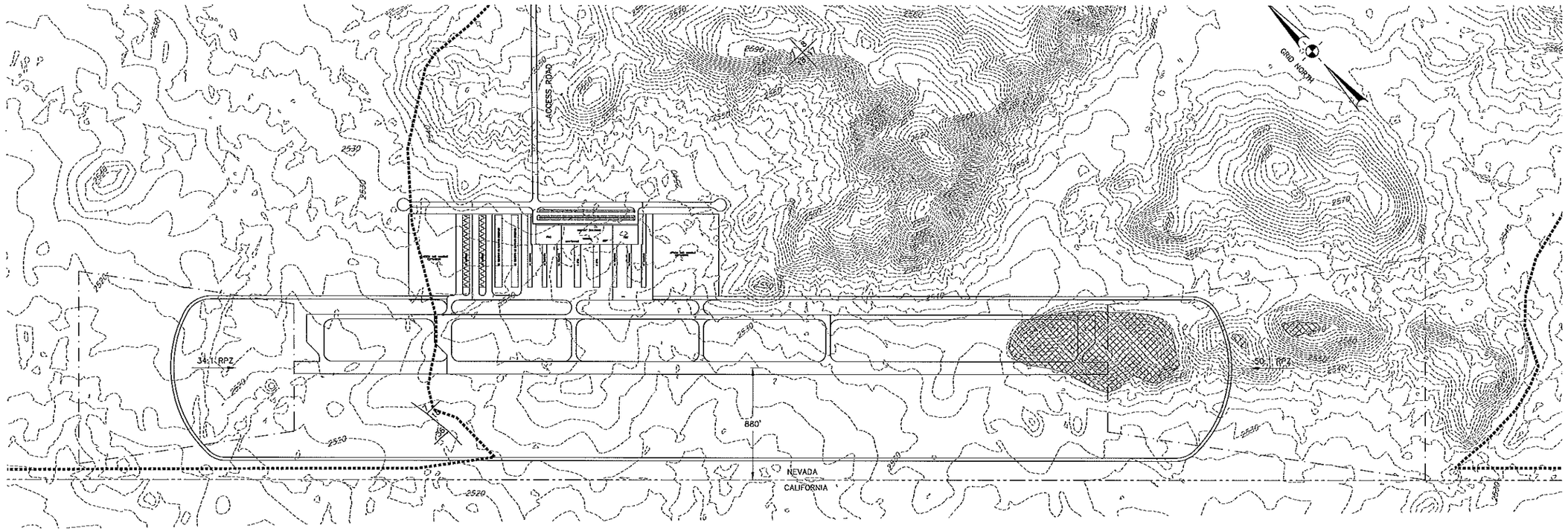
RUNWAY 12-30 - PLAN AND PROFILE

DESIGN BY: DB
DRAWN BY: DB
CHK'D BY: RWB
DATE: APRIL 15, 2008
CONTRACT No. -
PROJECT NO: 0102
DWG FILE: SITE C PROFILES
DRAWING SCALE: 1"=400'

SHEET NUMBER
11 OF 13 SHEETS

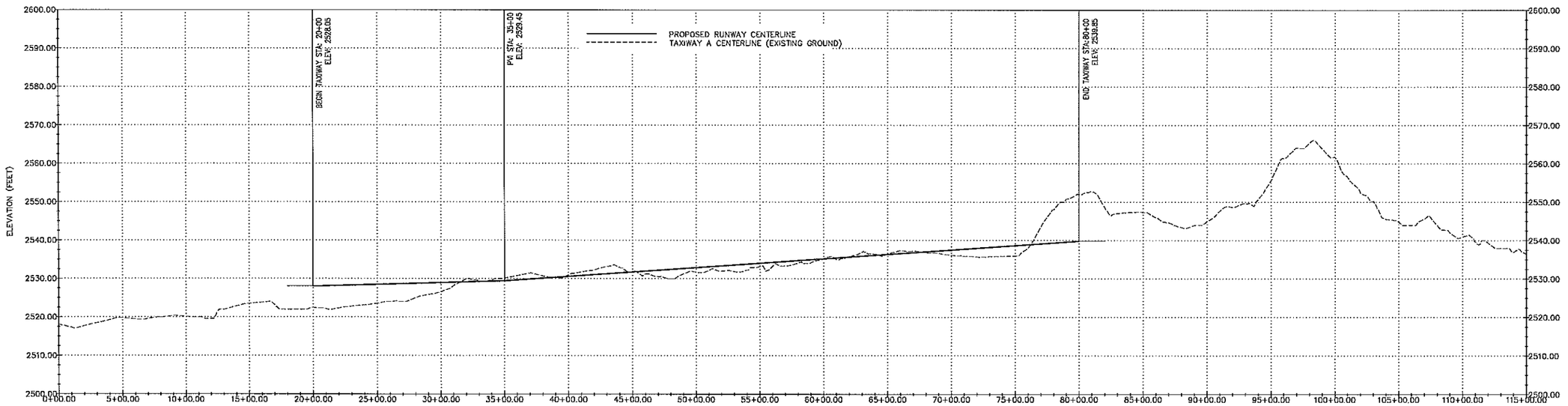
VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



SITE C PLAN

LEGEND:
- EXISTING GROUND CONTOUR
- STATE LINE
- RPZ BOUNDARY
- FLOOD PLAIN BOUNDARY
- 7 | 8 / 18 | 17 SECTION CORNER
- FAR PART 77 OBSTRUCTIONS



SITE C PROFILE

Reinard W. Brandley
CONSULTING AIRPORT ENGINEER
6123 King Road, Suite 201 • Loomis, California 95650-8904 • (916) 652-4725

PROFESSIONAL ENGINEER REINARD W. BRANDLEY No. C 9841 Exp. 9-30-2008 CIVIL STATE OF CALIFORNIA

ENGINEER OF RECORD

NO.	REVISIONS	BY	APP	DATE

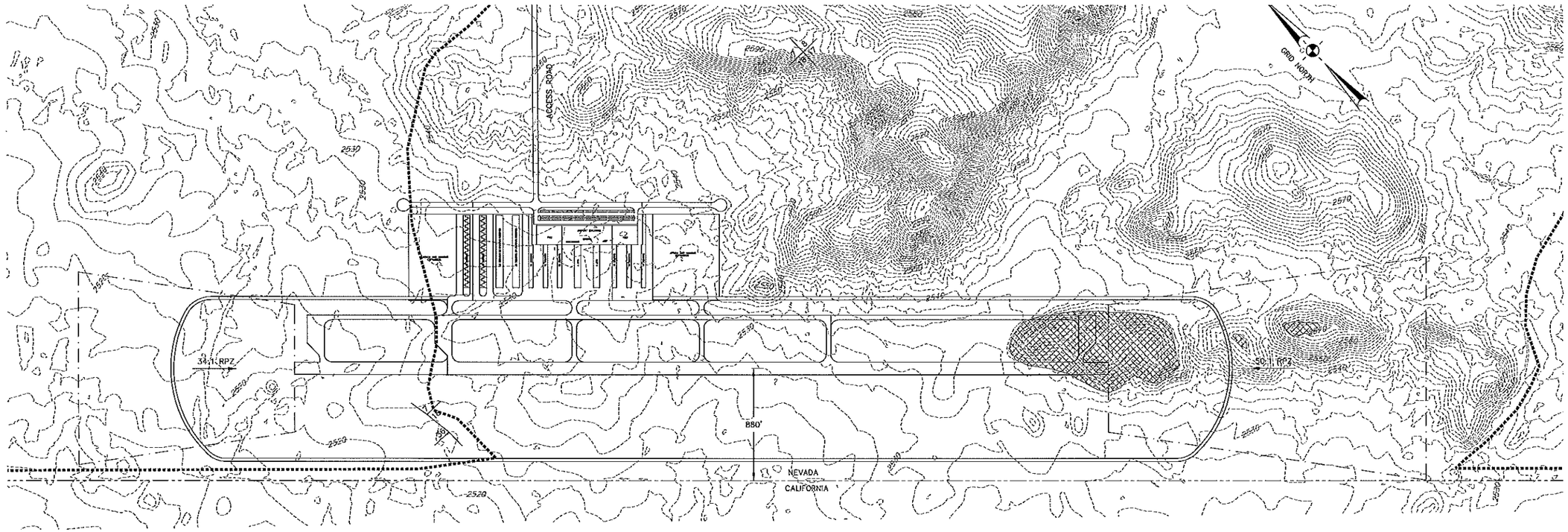
PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA
SITE SELECTION STUDY
TAXIWAY A - PLAN AND PROFILE

DESIGN BY: DB
DRAWN BY: DB
CHKD BY: RWB
DATE: APRIL 15, 2008
CONTRACT No. -
PROJECT NO: 0102
DWG FILE: SITE C PROFILES
DRAWING SCALE: 1"=400'

SHEET NUMBER
12 OF 13 SHEETS

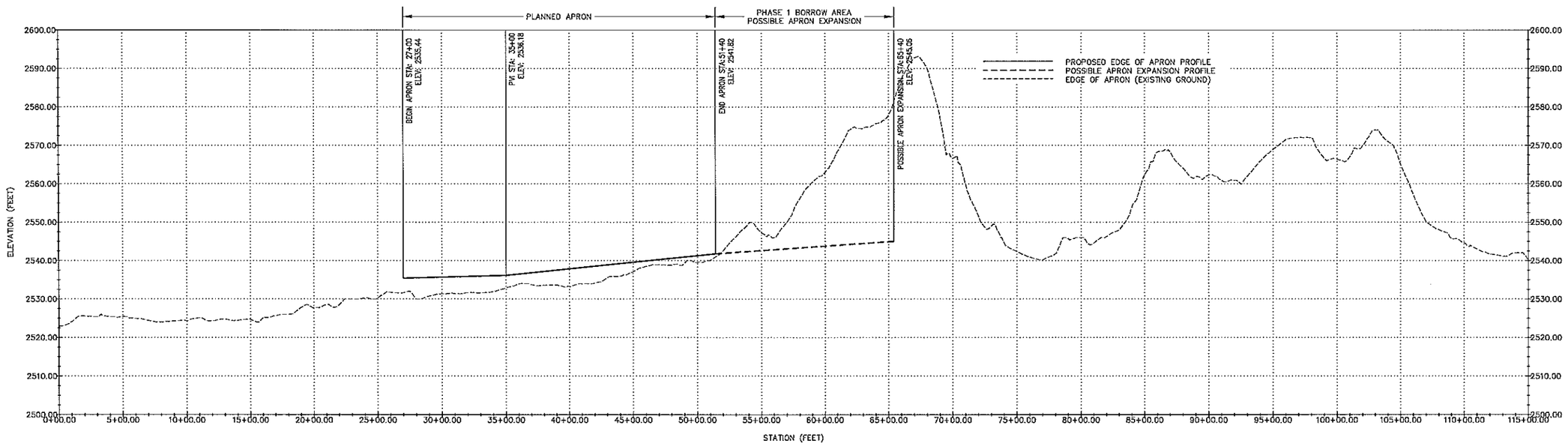
VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



SITE C PLAN

LEGEND:
- 2530 EXISTING GROUND CONTOUR
- STATE LINE
- RPZ BOUNDARY
- FLOOD PLAIN BOUNDARY
- 7/18 | 8/17 SECTION CORNER
- FAR PART 77 OBSTRUCTIONS



SITE C PROFILE

Reinard W. Brandley
CONSULTING AIRPORT ENGINEER
6125 King Road, Suite 201 • Loomis, California 95650-0004 • (916) 652-7225

REGISTERED PROFESSIONAL ENGINEER * REINARD W. BRANDLEY * No. C 9044 Exp. 9-30-2008 * CIVIL * STATE OF CALIFORNIA *

ENGINEER OF RECORD

NO.	REVISIONS	BY	APP	DATE

PAHRUMP VALLEY AIRPORT
PAHRUMP, NEVADA

SITE SELECTION STUDY

APRON EDGE - PLAN AND PROFILE

DESIGN BY:	DB
DRAWN BY:	DB
CHK'D BY:	RWB
DATE:	APRIL 15, 2008
CONTRACT No.	-
PROJECT NO:	0102
DWG FILE:	SITE C PROFILES
DRAWING SCALE:	1"=400'

SHEET NUMBER
13 OF 13 SHEETS