

WHITE SANDS SPACE HARBOR AREA 1,
WEATHER TOWER No.4

HAER No. NM-28-E

(Space Shuttle Landing Facility Area 1, Weather Tower No. 4)
White Sands Missile Range
Approximately 375 feet west of the Control Tower
White Sands vicinity
Doña Ana County
New Mexico

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
U.S. Department of the Interior
Intermountain Regional Office
12795 Alameda Parkway
Denver, CO 80225-0287

HISTORIC AMERICAN ENGINEERING RECORD

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Location: White Sands Missile Range
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U.S.G.S. 7.5 Minute Las Cruces, New Mexico,
Quadrangle, Universal Transverse Mercator Coordinates
(center of runways): E 32.944408 N 106.41993 Zone 13S,
NAD 1983.

Construction: 1982-2005

Architect: Not known

Builder: Not known

Present Owner: Commander, U.S. Army White Sands Missile Range,
New Mexico 88002-5018

Present Use: Operated by U.S. Army, White Sands Missile Range

Significance: The Weather Tower No. 4 was an essential component of the White Sands Space Harbor (WSSH) from 1982-2011. It has a historical association with the landing of Space Transportation System (STS)-3 *Columbia* in March 1982; this is the only STS landing to take place outside Edwards Air Force Base in California and Kennedy Space Center in Florida. The Weather Tower No. 4 is considered to have national significance and is eligible for listing in the National Register of Historic Places (NRHP) under Criterion A for its association with the NASA Space Shuttle Program (SSP) with a period of significance of 1976-2011. Because it achieved significance within the past fifty years, Criterion Consideration G also applies.

Report

Prepared by: Robbie D. Jones, Senior Historian
New South Associates
118 South 11th Street
Nashville, TN 37206

Date: September 2013

LIST OF ACRONYMS

ABGR	Alamogordo Bombing and Gunnery Range
ABS	Anti-lock Braking System
ACHP	Advisory Council on Historic Preservation
ACI	Archaeological Consultants, Inc.
AIAA	American Institute of Aeronautics and Astronautics
APE	Area of Potential Effects
ATC	Air Traffic Control
BTT	Basic Training Target
CCC	Civilian Conservation Corps
CIT	California Institute of Technology
CONEX	Container Express
DC-X	Delta Clipper, Experimental
DoD	Department of Defense
GPS	Global Positioning System
HAFB	Holloman Air Force Base
HPO	Historic Preservation Officer
HPWG	Historic Preservation Working Group
HUB	Harbor Utility Building
IGS	Inter Glide Slope
IHA	InoMedic Health Applications, LLC
JSC	Johnson Space Center
KSC	Kennedy Space Center
LC	Launch Complex
MD	McDonnell Douglas
MSBLS	Microwave Scanning Beam Landing System
MSFC	Marshall Space Flight Center
NASA	National Aeronautics and Space Administration
NAVAIDS	Navigational Aids
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places

NSA	New South Associates
OCC	Operations Control Center
ORD	Army Ordinance Department
PAPI	Precision Approach Path Indicator
RFP	Request for Proposal
SCAPE	Self Contained Atmospheric Protective Ensemble
SHPO	State Historic Preservation Officer
SSP	Space Shuttle Program
SSRT	Single Stage Rocket Technology
STA	Shuttle Training Aircraft
STS	Space Transportation System
TACAN	Tactical Air Navigation
TAL	Transoceanic Abort Landing
UHF	Ultrahigh Frequency
USAAF	United States Army Air Force
USAF	United States Air Force
VITT	Vehicle Integration Test Team
WPA	Works Progress Administration
WSMR	White Sands Missile Range
WSNM	White Sands National Monument
WSPG	White Sands Proving Ground
WSSH	White Sands Space Harbor
WSTF	White Sands Test Facility

PART I. HISTORICAL INFORMATION

A. PHYSICAL HISTORY

1. DATE OF CONSTRUCTION

Weather Tower No. 4 was constructed from 1982-2005.

2. ENGINEER

Not known.

3. BUILDER/CONTRACTOR/SUPPLIER

Not known.

4. ORIGINAL PLANS

Not available.

5. ALTERATIONS AND ADDITIONS

The 1982 tower was replaced in 1988 on the original 1982 elevated platform; a second tower was added in 2005.

PART II. STRUCTURAL/DESIGN INFORMATION

A. GENERAL DESCRIPTION

1. CHARACTER

Weather Tower No. 4 is located approximately 300' west of the HUB Maintenance Facility. Consisting of two separate metal towers, this structure is monitored and maintained by the WSMR. The southernmost tower features modern automated weather observing systems attached to a 1988 tower mounted on a 1982 elevated steel platform. The rectangular platform is accessed by a metal staircase. The solar-powered weather tower is secured to the platform and the ground with cable tie downs. In 2005, the northernmost metal tower was erected on a concrete pad. This triangular-shaped tower is painted red and white and is supported by electronic equipment.

2. CONDITION OF FABRIC

When documented in March 2012, Weather Tower No. 4 was in good condition and operational.

B. CONSTRUCTION

Weather Tower No. 4 is constructed of two steel towers. The southern tower is supported by an elevated steel platform and secured with cable tie downs. The northern tower is supported by a concrete foundation pad.

C. MECHANICAL/OPERATION

Weather Tower No. 4 is monitored and maintained by the U.S. Army at White Sands Missile Range.

PART III. SOURCES OF INFORMATION

A. ENGINEERING PLANS AND DRAWINGS

There are no original engineering plans or drawings for Weather Tower No. 4.

B. EARLY VIEWS AND HISTORICAL DATA

Historic photographs and maps of the WSSH are very limited. A view of the weather tower from 2006 can be found on page 16 of this document. The other historical data comes from a variety of sources cited in the Bibliography below.

The historic photographs and most of the historical data used in this documentation came from sources within WSTF and WSSH. Other more current imagery was obtained from the online WSTF Media Archive. Many of the original photographs have been donated to the WSMR Museum for digitization and curation. A body of recent aerial photographs were located and photocopied for inclusion in the HAER document to supplement the current ground photography.

C. INTERVIEWS

The following NASA and WSMR employees were interviewed for this documentation.

Robert E. Mitchell, WSTF Manager, September 2011.

Frank Offutt, WSSH Manager, September 2011.

Timothy Davis, WSTF Historic Preservation Officer, September 2011 and March 2012.

Bill Godby, WSMR Historic Preservation Officer, September 2011.

Doyle Piland, WSMR Museum Archivist, September 2011.

Dennis G. Perrin, NASA Johnson Space Center, Houston, Texas, and WSTF Facility Manager (1975-1989), June 2013.

D. BIBLIOGRAPHY

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- Deming, Joan, and Patricia Slovinac. "Survey and Evaluation of NASA-owned Historic Facilities and Properties in the Context of the U.S. Space Shuttle Program: White Sands Test Facility, Las Cruces, New Mexico," 2007. Archaeological Consultants, Inc., Sarasota, Florida. Unpublished report on file at NASA, Kennedy Space Center, Florida.
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Mitchell, Robert E. "NASA Johnson Space Center Facilities Oral History Project: Robert E. Mitchell, Interviewed by Jennifer Ross-Nazzal." Las Cruces, New Mexico, August 10, 2009.

NASA. "Space Shuttle Transoceanic Abort Landing (TAL) Sites." Information booklet published online, 2006. Website http://www.nasa.gov/centers/kennedy/pdf/167472main_TALsites-06.pdf, accessed November 19, 2011.

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Offutt, Frank. "WSSH Background." Unpublished response to questionnaire, 1994, submitted by Victoria Bradley, on file at WSTF, White Sands, New Mexico.

Paczynski, Alex S. "NASA Johnson Space Center Facilities Oral History Project: Alex S. Paczynski, Interviewed by Jennifer Ross-Nazzal." Las Cruces, New Mexico, August 10, 2009.

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E. LIKELY SOURCES NOT YET INVESTIGATED

Research was conducted at WSSH and WSTF using primary and secondary sources. Sources that were not investigated that may contain secondary information are archived at NASA's Lyndon B. Johnson Space Center in Houston, Texas.

Additional oral history interviews with other engineers and technicians could also prove useful.

PART IV. PROJECT INFORMATION

In 2011-2012, New South Associates (NSA), under contract with InoMedic Health Applications, LLC (IHA) of Kennedy Space Center, Florida, and in coordination with NASA and the U.S. Army, conducted background research and a historic architecture survey of resources at the NASA WSSH. The survey included the documentation and evaluation for NRHP eligibility for seventy-two resources located in four distinct areas. Based on this research, NSA determined that no properties remain at WSSH from the period prior to NASA acquisition in 1963 except for the footprint of the packed gypsum Runway 17/35.¹

NSA recommended that the three NASA WSSH Runways and the Control Tower in Area 1 were individually eligible for listing in the NRHP and eligible as contributing resources to the "WSSH Shuttle Landing Facility District" under Criterion A and Criterion Consideration G for their association with the NASA SSP. None of the other sixty-eight inventoried properties were recommended individually eligible for listing in the NRHP due to lack of historical association with the NASA SSP or other historic contexts, lack of unique design or construction features, or insufficient integrity; however, nineteen of these properties, all of which lie within Area 1, were recommended as contributing resources to "WSSH Shuttle Landing Facility District," even though they were not recommended individually eligible for the NRHP. The historic district contains a total of twenty-eight resources: twenty-three are contributing and five are non-contributing.

After formally ending the SSP on August 31, 2011, NASA disposed of the WSSH and released use of the property to the U.S. Army WSMR. The property transfer was a federal undertaking on federally-owned property and subject to compliance with Section 106 of the NRHP Act of 1966, as amended. The undertaking resulted in an Adverse Effect to the NRHP-eligible WSSH Shuttle Landing Facility District. To mitigate the adverse effects, NASA completed HAER Level II documentation of the historic district

¹ Reed, Mary Beth, and Robbie D. Jones. "Historic Architecture Survey and National Register of Historic Places Evaluation of the NASA White Sands Space Harbor on the U.S. Army Whites Sands Missile Range, Doña Ana County, New Mexico." New South Associates, Stone Mountain, Georgia, 1998: 44-62. Unpublished report on file at NASA WSTF, Las Cruces, New Mexico.

and relocated the Control Tower to the WSMR Museum for conservation, exhibition, and public interpretation.

The mitigation plan was defined in a Memorandum of Agreement (MOA), executed between NASA, the U.S. Army, and the NM-SHPO in August 2012. The properties within the historic district were documented with large format photography in March 2012.

APPENDIX- LOCATION MAPS

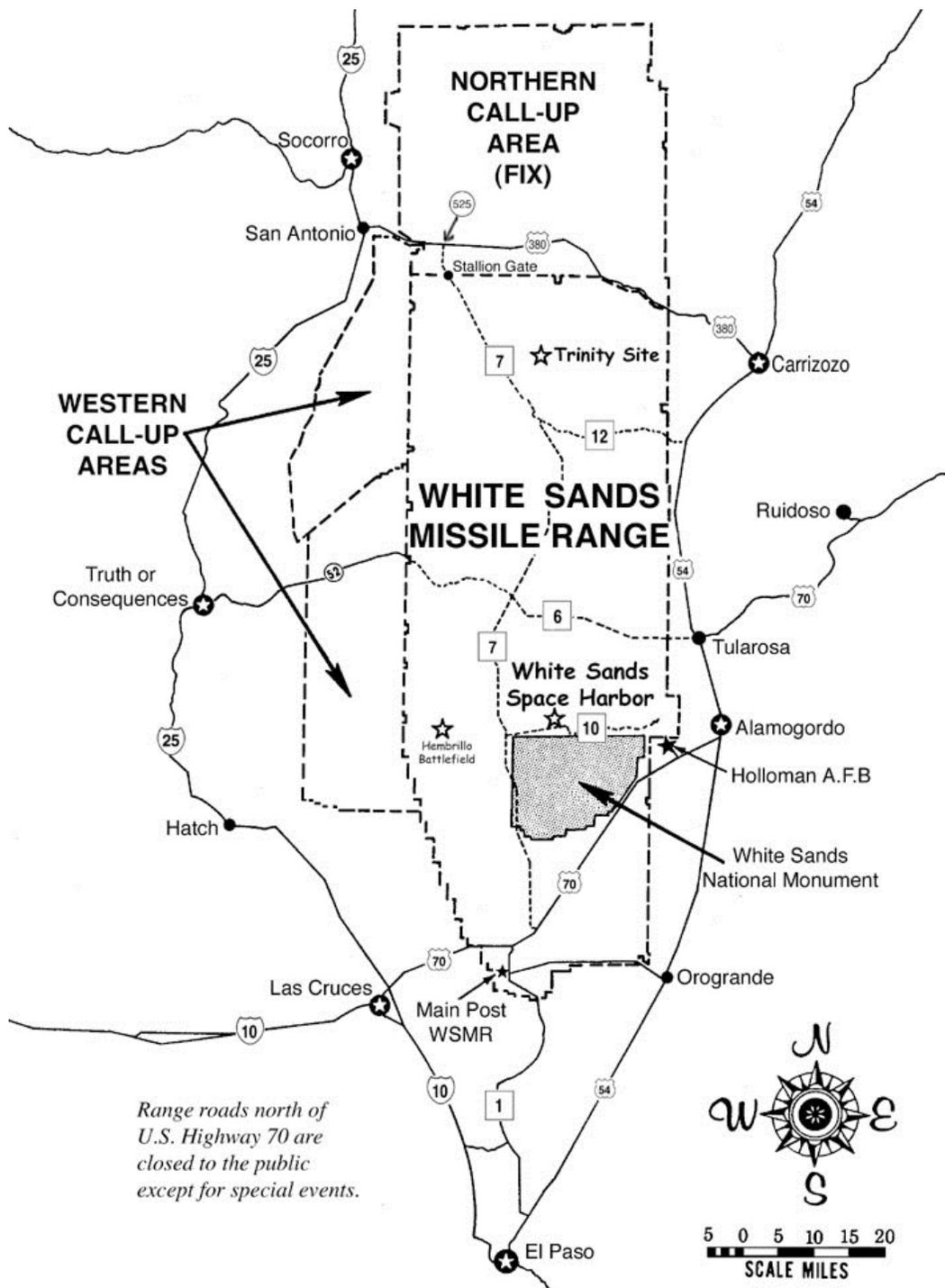


Figure 1. Map of White Sands Military Reservation showing White Sands Space Harbor (Source: U.S. Army).

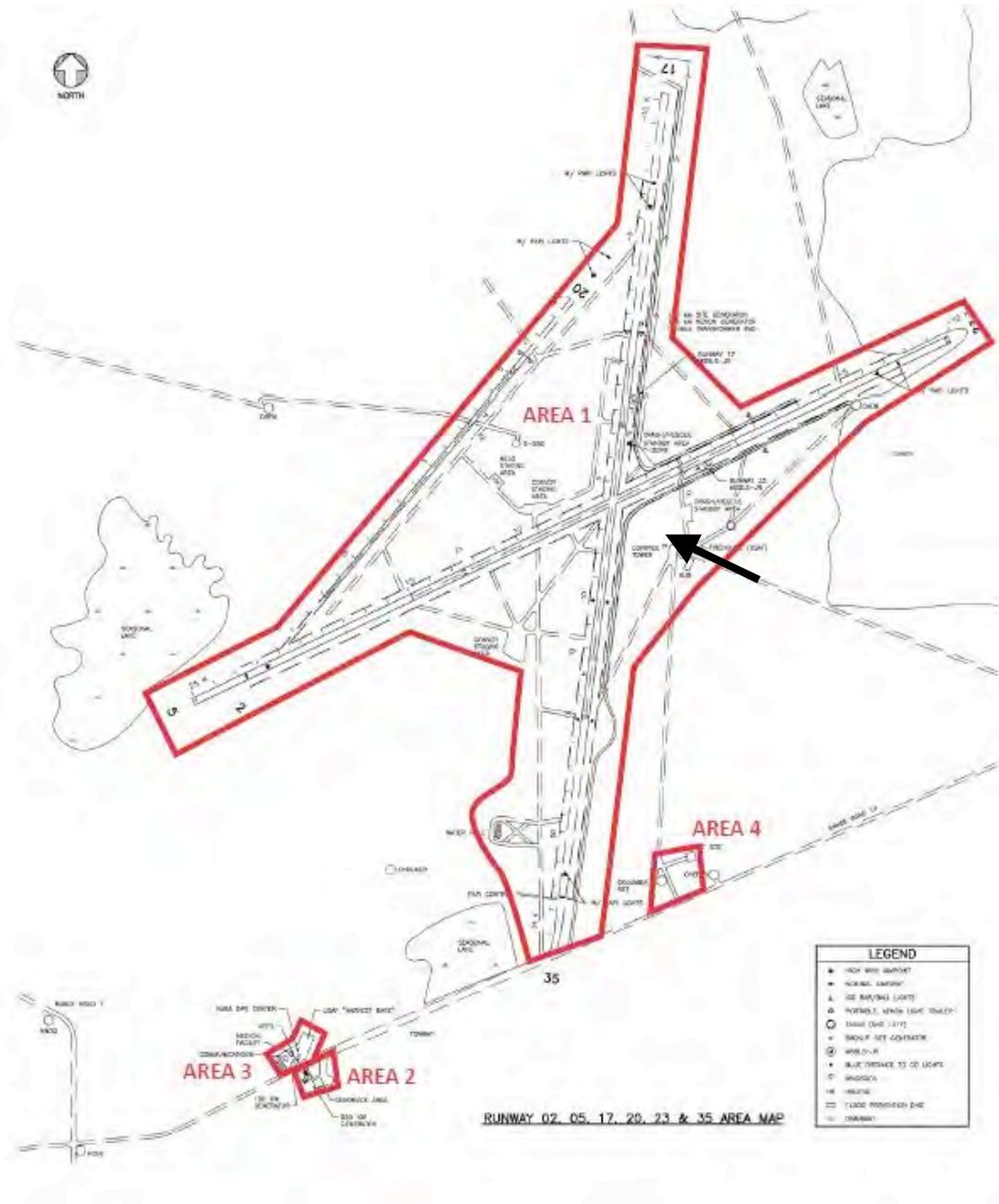


Figure 2. Map of WSSH showing location of Weather Tower No. 4 in Area 1, which delineates the NRHP boundaries of the WSSH Shuttle Landing Facility District (Base Map Source: NASA WSTF).



Figure 3. Aerial View of HUB Complex, Looking East, Showing Weather Tower No. 4 in Foreground, 2006 (Source: NASA WSTF).

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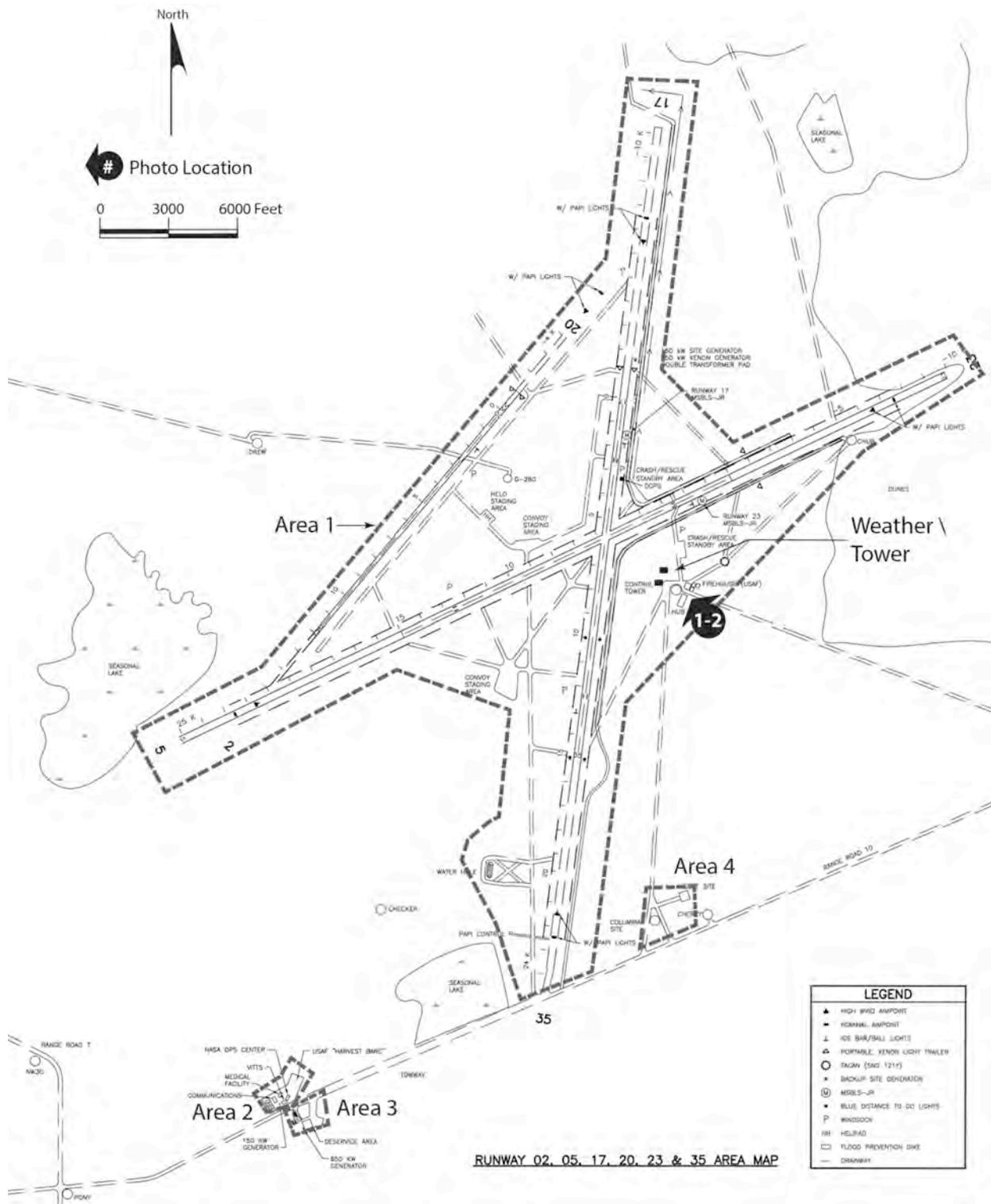
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WEATHER TOWER No.4
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White Sands Missile Range
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White Sands vicinity
Doña Ana County
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David Diener, Photographer March 27-29, 2012

NM-28-E-1 VIEW OF WEATHER TOWER NO.4 LOOKING NORTHWEST FROM
HUB MAINTENANCE BUILDING TOWARDS SAN ANDRES MOUNTAINS.

NM-28-E-2 VIEW OF WEATHER TOWER NO.4 LOOKING NORTHWEST TOWARDS
SAN ANDRES MOUNTAINS.

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RUNWAY 02, 05, 17, 20, 23 & 35 AREA MAP



