ENTERED

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON WHITE SANDS
100 Headquarters Avenue
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-5000

JAN 2013

January 25, 2013

REPLY TO
ATTENTION OF

Directorate of Public Works

Mr. John Kieling, Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

SUBJECT: Final Release Assessment Report, SWMUs 107, 116-118, 121-123, 125-126, 137, 153, and 163

Dear Mr. Kieling:

Enclosed for your review is the document titled: *Final Release Assessment Report SWMUs 107, 116, 117, 118, 121, 122, 123, 125, 126, 137, 153, and 163 SWMU 107 (WSMR-35) Temperature Test Facility Evaporation Tank; SWMU 116, 117, and 118 (WSMR-75) Rhodes Canyon Subgrade Asphalt Tanks; SWMUs 121, 122, 123, (WSMR-67) the Asphalt Tanks at Stallion Range; SWMU 125 and 126 (WSMR-77) Veterinary Clinic and McAfee Clinic Incinerators; SWMU 137 (WSMR-56) Paint Shop Sump; SWMU 153 (WSMR-58) Vandal Burial Site; and SWMU 163 (WSMR-72) Abandoned Disposal Trench at New Commissary White Sands Missile Range, New Mexico, January 2013.*

This document was prepared in response to the New Mexico Environmental Department (NMED) letter dated October 26, 2012 (WSMR-12-005) and addresses SWMUs listed in Appendix 8, Table 8-2 of the WSMR RCRA Permit. Although the sites are not newly identified, the document contains the elements found in Permit Section VI.F.1. Investigations and remediation work have already been conducted at these sites.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions regarding this matter, please contact Mr. Benito Avalos of our Environmental Compliance Branch at (575) 678-2225.

I am forwarding this letter with enclosure (1 print copy w/CD) to Ms. Kristen Van Horn, NMED-HWB; and without enclosure to Mr. Dave Cobrain, NMED-HWB; Mr. Paul Torcoletti, EPA Region 6; Mr. Sudhakar Matlapudi, Shaw Inc.

Sincerely,

Jose Gallegos
Chief, Environmental Division

Enclosure

Final
Release Assessment Report, SWMUs 107, 116, 117, 118, 121, 122, 123, 125, 126, 137, 153, and 163

SWMU 107 (WSMR-35) Temperature Test Facility Evaporation Tank;
SWMUs 116, 117, and 118 (WSMR-75) Rhodes Canyon Subgrade Asphalt Tanks;
SWMUs 121, 122, and 123 (WSMR-67) the Asphalt Tanks at Stallion Range;
SWMU 125 and 126 (WSMR-77) Veterinary Clinic and McAffee Clinic Incinerators;
SWMU 137 (WSMR-56) Paint Shop Sump;
SWMU 153 (WSMR-58) Vandal Burial Site; and
SWMU 163 (WSMR-72) Abandoned Disposal Trench at New Commissary

January 2013

White Sands Missile Range, NM

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This Release Assessment Report has been prepared for submission to the New Mexico Environment Department (NMED) Hazardous Waste Bureau, as required by Appendix 8, Table 8-2 of the Resource Conservation and Recovery Act (RCRA) Permit No. NM2750211235, containing the elements found in Permit Section VI.F.1.White Sands Missile Range (WSMR) was issued Hazardous Waste Permit No. NM2750211235 by the U.S. Environmental Protection Agency (EPA) on October 24, 1989 under the authority of RCRA, Part B. Before January 1, 1996, the EPA was the Administrative Authority for the permit; on January 1, 1996, the NMED became the Administrative Authority. The Solid Waste Management Units (SWMUs) included in this report are listed in Table 8-2 in the WSMR RCRA Permit (NMED, 2009) as having an outstanding requirement for a release assessment. The SWMUs included in this report have been part of previous investigations and/or remediations and are not newly identified. However, this Release Assessment Report is prepared to fulfill the requirement listed in Table 8-2 of the WSMR RCRA Permit (NMED, 2009).

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SWMU 125 and 126 (WSMR-77) Veterinary Clinic and McAffee Clinic Incinerators;
SWMU 137 (WSMR-56) Paint Shop Sump;
SWMU 153 (WSMR-58) Vandal Burial Site; and
SWMU 163 (WSMR-72) Abandoned Disposal Trench at New Commissary

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January 2013

Prepared for:

U.S. Army
White Sands Missile Range
Directorate of Public Works – Environmental Division
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Acronyms and Abbreviations

°F	degree(s) Fahrenheit
amsl	above mean sea level
ASI	Advanced Sciences Inc.
EPA	U.S. Environmental Protection Agency
NMED	New Mexico Environment Department
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
STP	Sewage Treatment Plant
SWMU	Solid Waste Management Unit
TTF	Temperature Test Facility
UST	Underground Storage Tank
VSI	Visual Site Inspection
WSMR	White Sands Missile Range
WTS	White Sands Technical Services

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1.0 INTRODUCTION

This Release Assessment Report has been prepared for submission to the New Mexico Environment Department (NMED) Hazardous Waste Bureau, as required by Appendix 8, Table 8-2 of the Resource Conservation and Recovery Act (RCRA) Permit No. NM2750211235, containing the elements found in Permit Section VI.F.1. White Sands Missile Range (WSMR) was issued Hazardous Waste Permit No. NM2750211235 by the U.S. Environmental Protection Agency (EPA) on October 24, 1989 under the authority of RCRA, Part B. Before January 1, 1996, the EPA was the Administrative Authority for the permit; on January 1, 1996, the NMED became the Administrative Authority. The Solid Waste Management Units (SWMUs) included in this report are listed in Table 8-2 in the WSMR RCRA Permit (NMED, 2009) as having an outstanding requirement for a release assessment. The SWMUs included in this report have been part of previous investigations and/or remediations and are not newly identified. However, this Release Assessment Report is prepared to fulfill the requirement listed in Table 8-2 of the WSMR RCRA Permit (NMED, 2009). The SWMUs in this release assessment report are shown in Figure 1-1. The SWMUs include the following:

- SWMU 107 (WSMR-35) the Temperature Test Facility Evaporation Tank
- SWMUs 116, 117, and 118 (WSMR-75) Rhodes Canyon Subgrade Asphalt Tanks
- SWMUs 121, 122, and 123 (WSMR-67) the Asphalt Tanks at Stallion Range
- SWMUs 125 and 126 (WSMR-77) Veterinary Clinic and McAffee Clinic Incinerators
- SWMU 137 (WSMR-56) Paint Shop Sump
- SWMU 153 (WSMR-58) Vandal Burial Site
- SWMU 163 (WSMR-72) Abandoned Disposal Trench at New Commissary

This Release Assessment Report presents the historical records available for SWMUs discussed in this release assessment report and the specifications of all wastes managed and any hazardous wastes that have been released within each SWMU. Available historical records for each site have been summarized.

1.1 Facility Description

WSMR is a U.S. Army Development Test Command Installation established in 1945. WSMR is the largest land area military installation in the United States, encompassing approximately 3,200 square miles of land in Doña Ana, Socorro, Lincoln, Otero, and Sierra

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Counties in south-central New Mexico. The installation is approximately 99 miles long (north to south) and 25 to 40 miles wide (east to west) (White Sands Technical Services [WTS], 2006). WSMR was established on July 9, 1945, as White Sands Proving Ground (the name was changed in 1958) to be the nation's testing range for the newly developed missile weapons. The New Mexico desert was selected as the testing range. The sparse population, almost year-round clear weather, and excellent visibility affording relatively easy recovery of spent missiles contributed to establishing the base in this location.

WSMR is located in the Tularosa Basin of south-central New Mexico, and portions of WSMR extend west into the Jornada del Muerto Basin. The headquarters (Main Post) area of WSMR is located at the southwestern corner of the installation, approximately 27 miles east-northeast of Las Cruces, New Mexico, and 45 miles north of El Paso, Texas. The main entrance to WSMR is on U.S. Highway 70, east from Interstate 25 at Exit 6.

1.2 Environmental Setting

1.2.1 Geographic Setting

Topographic relief across WSMR is dominated by two prominent geomorphic features, the San Andres Mountains and the Tularosa Basin. The average elevation of the Tularosa Basin is 4,000 feet above mean sea level (amsl). The San Andres range trends north-south along the western side of the missile range and varies in elevation from 5,700 feet amsl at San Augustin Pass, where Highway 70 crosses the mountains, to more than 9,000 feet amsl at Salinas Peak, the highest point on WSMR.

1.2.2 Climate

Average annual precipitation measured at gauging stations in the Tularosa Basin, southeast of the WSMR Main Post, is 10.8 inches per year. About 50 percent of the annual precipitation falls in the months of July through September in southern New Mexico. The average high temperature in the summer is about 92 degrees Fahrenheit (°F) with the lows reaching 65°F. During the winter months, the average high is about 57°F, and the average low is about 36°F. Average annual humidity readings are only 37 percent. Wind is a climatic factor at WSMR from February through May, as westerly winds can reach about 40 miles per hour.

1.2.3 Geology and Soil Types

1.2.3.1 Regional Geology

WSMR lies within the Mexican Highland Section of the Basin and Range Province. This province is characterized by a series of tilted fault blocks forming longitudinal, asymmetric ridges, or mountains, and broad intervening basins. The geology of WSMR consists predominantly of the Tularosa Basin and surrounding mountain ranges. The San Andres,

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San Augustin, and Oscura Mountains border the Tularosa Basin on the west, and the Sacramento Mountains form the eastern border. A narrow region of north-south–trending, large-displacement normal faulting separates the mountains from the basin, thus resulting in the change in relief across the missile range (Figure 1-1). The majority of WSMR property, including most test facilities, is located within the Tularosa Basin (WTS, 2006).

The Tularosa Basin contains thick sequences of Tertiary- and Quaternary-age alluvial and bolson fill deposits. These sediments, more than 5,000 feet in thickness in some areas, consist mainly of silt, sand, gypsum, and clay weathered from the surrounding mountain ranges. The average elevation of the basin floor is 4,000 feet amsl, and surface features consist of flat sandy areas, sand dunes, basalt flows, and playas (dry lake beds) (Figures 1-2 through 1-4; WTS, 2006).

The nature of the bolson-fill deposits varies both laterally and vertically throughout the Tularosa Basin. Coarse-grained, poorly-sorted sediments deposited near mountain fronts grade into finer-grained, well-sorted sediments toward the center of the basin (Kelly and Hearne, 1976). Sediments farther from the mountain fronts also contain a greater percentage of clay and gypsum. Vertically, the sediments are reported to become finer-grained and more consolidated until reaching a laterally continuous clay unit about 1,000 feet below ground surface (Kelly and Hearne, 1976).

In general, the stratigraphy is represented by unconsolidated to partially consolidated, fine- to medium-grained sand with subordinate amounts of clay. Caliche is present as discrete layers and nodules throughout the stratigraphic section. Although no faults within the basin fill are mapped within the immediate area, Quaternary faulting is known to exist within the region. These faults are reported to occur within the unconsolidated bolson sediments, trend north to south, and are most common near the mountain fronts.

1.2.4 Hydrogeology

1.2.4.1 Regional Hydrogeology

Surface hydrogeology at WSMR is characterized by low precipitation, high evapotranspiration rates, and high soil infiltration. During the summer season, when thunderstorm activity is most common, playas within the basin may contain standing water. The arroyos that drain the surrounding mountain ranges usually contain water only following heavy precipitation events. The Tularosa Basin is a closed basin with no surface water drainage outside of WSMR (WTS, 2006).

The WSMR Main Post obtains its potable water supply from an aquifer located in the upper bolson deposits. The majority of groundwater recharge to this aquifer occurs through the coarse, unconsolidated Tertiary/Quaternary alluvial fan deposits and arroyos along the eastern flank of the Organ, San Augustin, and San Andres Mountains. To the east, groundwater becomes more mineralized, primarily with sulfate and chloride. Groundwater flow direction is generally toward the center of the Tularosa Basin.

Recharge to the regional aquifer is from precipitation falling on the mountain ranges and alluvial fans, which border the bolson on the west (WTS, 2006). This precipitation infiltrates the unconsolidated, relatively coarse deposits of the alluvial fans, and the resultant groundwater flows toward the center of the Tularosa Basin, generally to the east-southeast. To the east, groundwater becomes more mineralized, primarily with sulfate and chloride, most likely due to the slow lateral migration rate of groundwater from recharge to discharge areas in the presence of readily soluble minerals in the bolson sediments. However, groundwater flow direction within the western Tularosa Basin region is presumed to discharge to the south as underflow into the contiguous, northern Hueco Basin of western Texas. No surface expressions of groundwater discharge have been reported within the western Tularosa Basin (WTS, 2006).

1.3 Land Use

1.3.1 Current Land Use

WSMR is withdrawn public domain land controlled by the U.S. Department of Defense. For safety and security reasons, access to WSMR is restricted to authorized military and civilian personnel. Residential areas are limited to concentrated tracts at the Main Post and several uprange command and control centers. The land on the missile range is predominantly used to stage tests of aerial weapons systems. Although much of the weapons testing occurs in the airspace above WSMR, designated support, launch, and impact areas have been established.

The twelve SWMUs discussed in this proposal (SWMU 107, SWMUs 116, 117, and 118, SWMUs 121, 122, and 123, SWMUs 125 and 126, SWMU 137, SWMU 153, and SWMU 163) are located within the facility boundary, which is an industrial setting where public access is restricted by fences and military police.

1.3.2 Future Land Use

The U.S. Department of Defense will continue its primary mission at WSMR for the foreseeable future. Public access to the approximately 3,200 square miles of land comprising the missile range will continue to be restricted.

SWMU 107 (WSMR-35), SWMUs 116, 117 and 118 (WSMR-75), SWMUs 121, 122, and 123 (WSMR-67), SWMUs 125 and 126 (WSMR-77), SWMU 137 (WSMR-56), SWMU 153 (WSMR-58) and SWMU 163 (WSMR-72) will remain within the facility boundary, an industrial setting with public access restricted by fences and military police.

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2.0 SWMU 107 (WSMR-35) TEMPERATURE TEST FACILITY EVAPORATION TANK

This section summarizes relevant historical information contained in available WSMR documents. The following subsections provide a site description, operational history, wastes managed, and any hazardous waste released, or potentially released for each individual SWMU, as well as a summary of relevant environmental information contained in the available reports.

Results and conclusion from the historical reports summarized below have not been re-evaluated or interpreted as part of the preparation of this document. The information below provides documentation of release (or potential release) of hazardous waste or hazardous constituents, as well as documentation of the location and circumstances of the release.

2.1 SWMU 107 Description and Operational History

2.1.1 Site Description

The Temperature Test Facility (TTF) is located 1.5 miles east of the Main Post on Nike Avenue (Figure 2-1). SWMU 107 (WSMR-35) was an evaporation tank that was installed within the former evaporation pond (SWMU 104) and was installed prior to the construction of the new stainless steel evaporation tank (SWMU 105). The evaporation tank (SWMU 107) had a capacity of 25,000 gallons and was installed as an interim measure to store any overflow from the TTF (Kearney, 1988). The dimensions of the evaporation tank are unknown.

2.1.2 Operational History

The TTF, completed in early 1984, was designed to simulate extreme weather conditions by inducing a wide range of temperature and climatic variations. The completed facility consisted of a main test building, several underground storage tanks (UST) with ancillary piping, and a surface evaporation pond (MEVATEC Corporation, 2000). Originally, methylene chloride was used to cool the test chamber and was recycled via the USTs. In 1983, methylene chloride was flushed from the TTF to the evaporation pond (SWMU 104) due to leaks within the system. The methylene chloride subsequently eroded the polyvinyl chloride liner in the evaporation pond and leaked into the soil beneath it.

There is no documented evidence of a release or previous sampling activities at SWMU 107 (WSMR-35). No evidence of a release was observed during the visual site inspection (VSI) conducted by A.T. Kearney in May 1988. The RCRA Facility Assessment (RFA) reported that the potential for the release of contaminants to soil, groundwater, surface water, and air,

as well as production of subsurface gas from SWMU 107 (WSMR-35) was “low” (Kearney, 1988).

2.2 Conclusion

SWMU 107 was constructed of steel and installed as an interim storage tank prior to the construction of a new stainless steel tank (SWMU 105). It is unknown whether this unit actually received waste. The potential waste stream is primarily wastewater/condensate with the expected low concentration of hazardous constituents (methylene chloride); however, there is low potential for release to all media. The suggested action of the RFA was to recommend SWMU 107 for no further action (Kearney, 1988).

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3.0 SWMUS 116 – 118 (WSMR-75) RHODES CANYON SUBGRADE ASPHALT TANKS

3.1 SWMUs 116 – 118 Description and Operational History

3.1.1 Site Description

SWMUs 116, 117, and 118 (WSMR-75) consists of the Subgrade Tanks at Rhodes Canyon and are located approximately 60 miles north of the WSMR Main Post near the intersection of Range Routes 7 and 6 (Figure 3-1). SWMUs 116, 117, and 118 were later administratively combined into SWMU 116 and are depicted as such on Figure 3-1. Each SWMU contained one 2,500-gallon, steel tank that was partially buried and believed to have been used for oil or fuel storage. The center tank was only slightly exposed above the surface and appeared to be in poor condition. The visible portion of the other tanks appeared to be in good condition (Kearney, 1988). A hydrocarbon odor was noted near one tank. WSMR personnel did not know when the tanks might have been used or for what purpose. The tanks and an unknown quantity of soil are believed to have been removed in approximately 1994.

3.1.2 Operational History

Based upon visual observation in 1988, the steel tanks appeared to be 15 to 20 years old and the tanks were likely used to store fuel or oil (Kearney, 1988). During the VSI, conducted by A.T. Kearney in May 1988, the tanks were noted to be empty and abandoned. The tanks are believed to have been removed sometime around 1994, along with some soil. WSMR personnel did not know the dates of operation and for what purpose the tanks were used.

No documented evidence of a release has been reported for SWMUs 116, 117, and 118. The RFA reported that the possibility of release to soil and groundwater was “moderate” based on the lack of release controls, the in-ground location of the tanks, and the unknown nature of the materials managed during operation (Kearney, 1988).

3.2 Conclusion

No information is available to indicate that hazardous wastes may have been managed in these tanks. The tanks appeared to be abandoned and empty; however, the tanks may formerly have stored oil or fuels. Based on the unknown materials managed during the operational history and the in-ground location of the tanks, there was moderate potential for release of contaminants to the soil, groundwater, and air. The suggested action of the RFA was to recommend SWMUs 116-118 for no further action at the time (Kearney, 1988). If the tanks are to be returned to active service, the integrity of the tanks should be verified prior to use.

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4.0 SWMUS 121 – 123 (WSMR-67) ASPHALT TANKS AT STALLION RANGE

4.1 SWMUs 121 – 123 Description and Operational History

4.1.1 Site Description

SWMUs 121, 122, and 123 (WSMR-67), located north of the Stallion Range Center just west of the Stallion Gate security checkpoint, consisted of three inactive, subgrade tanks (Figure 4-1). Two tanks were steel and one was aluminum (Kearney, 1988).

4.1.2 Operational History

Three sub-grade storage tanks were used in the 1960s during the paving of the Stallion Range Center roads (Advance Sciences Inc. [ASI], 1993). The storage tanks were labeled Tank 1 (SWMU 121), Tank 2 (SWMU 122), and Tank 3 (SWMU 123). Tanks 1 and 2 were constructed of plate steel. Tank 3 was constructed of aluminum. Each storage tank had a capacity of approximately 15,000 gallons and dimensions of 26 feet in length by 9 feet in diameter (ASI, 1993).

Located on the side of a terraced hill, soil extended approximately halfway up the sides of the tanks on their northern end, while the soil on the southern ends of the tanks only extended approximately 1/8 up the tanks sides (ASI, 1993). The tanks were neither fully aboveground nor underground. One of the tanks appeared to be severely collapsed (Kearney, 1988). The visible portions of the other two tanks appeared to be in good condition. All three tanks appeared to be empty and abandoned based upon the visual survey. No piping or vent lines were observed to be connected to or associated with the tanks (ASI, 1993).

A tar-like odor was apparent on the downwind side of the tanks. The ground on the north side of the tanks appeared to be stained with a tar-like substance that looked dry, dark, and cracked and appeared to have been there a long time (Kearney, 1988). Facility personnel were unable to provide a list of materials which may have been managed within the tanks, the age of the tanks, and the dates of operation of the units (Kearney, 1988).

The RFA reported that the potential for the release of contaminants to soil, groundwater, air, and production of subsurface gas from SWMUs 121, 122, and 123 (WSMR-67) was “moderate.” For surface water, the RFA reported that the potential for release to surface water was “low” due to the absence of a nearby surface water body (Kearney, 1988).

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4.2 Conclusion

The potential for release is moderate to high based on the lack of release controls, the apparent age and condition of the tanks, the in-ground location, and unknown nature of the materials managed, and the observed ground stain. No information is available to indicate the contents of these tanks. Based on the VSI, the tanks appear to be abandoned asphalt emulsion tanks. Identification of the contents and confirmation of the integrity of the tanks is warranted. The suggested action of the RFA is to conduct an RCRA Facility Investigation (RFI) at these units (Kearney, 1988).

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5.0 SWMU 125 AND 126 (WSMR-77) VETERINARY CLINIC AND MCAFFEE CLINIC INCINERATORS

5.1 SWMUs 125 and 126 Description and Operational History

5.1.1 Site Description

SWMU 125 (WSMR-77), located in the southeastern portion of the WSMR Main Post, approximately 50 feet south of Building 1834 (Figure 5-1). SWMU 125 (WSMR-77) was a 3 by 5 by 2 feet high gas-fired unit mounted outside on a 6 inch concrete slab next to the Veterinary Clinic. SWMU 126 (WSMR-77), located in the northwest portion of the WSMR Main Post, was a double-hearth incinerator located inside of Building 530 (Figure 5-1).

5.1.2 Operational History

SWMU 125 (WMSR-77), the Veterinary Clinic Incinerator, was formerly used to dispose of "red bag" waste and "sharps" generated at the waste clinic. At the time of the visual inspection, conducted by A.T. Kearney in May 1988, the incinerator was mounted onto a 6-inch thick concrete slab. The installation and exact start-up date is unknown and the unit has not been used since 1986 (Kearney, 1988). Waste which was formerly incinerated at SWMU 125 was later disposed of at McAffee Clinic (SWMU 126). No hazardous wastes were managed within this unit, and no history of a release at this site is documented.

The potential for release to soil or groundwater at SWMU 125 was considered "low" based on the design and function of the unit and the management of non-hazardous waste (Kearney, 1988).

SWMU 126 (WSMR-77), the McAffee Clinic Incinerator, was formerly used to dispose of clinical wastes (infectious waste, needles, syringes) that had been sterilized in a nearby autoclave prior to incineration. Clinical wastes incinerated were generated at both the McAffee and Veterinary Clinics. A sign was noted on the incinerator that stated "to be used for biological waste only." Residue and ash from the incineration was placed into bags and disposed of in the Sanitary Landfill (SWMU 86) on the Main Post. Double doors on the south side of the building mark the exterior access point of the unit. The start-up date is unknown and the unit was decommissioned in 1988. No hazardous wastes were managed within this unit and no history of a release at this site is documented.

The RFA reported that the potential for release to soil or groundwater at SWMU 126 was "low" based on the design and function of the unit and the management of non-hazardous waste (Kearney, 1988).

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5.2 Conclusion

The potential for release to soil and groundwater is low based on the design and function of the units and the indication that no hazardous constituents were ever managed at SWMUs 125 and 126. SWMU 125 is no longer in use and residue/ash from SWMU 126 is disposed of in the sanitary landfill on WMSR. The suggested action of the RFA is that both SWMUs 125 and 126 be recommended for no further action (Kearney, 1988).

6.0 SWMU 137 (WSMR-56) PAINT SHOP SUMP

6.1 SWMU 137 Description and Operational History

6.1.1 Site Description

SWMU 137 (WSMR-56), located at the northeast end of Building 1742 on the Main Post (Figure 6-1), is a sump located outside of the 4,321 square foot Building. The paint shop sump is square (3 by 3 feet) and 3 feet deep with 3 inch concrete walls (Kearney, 1988). The head of the steel drain pipe is exposed in the northern face of the sump. A square metal cover (42 by 42 inches) is in place over the sump and is flush with the surrounding asphalt-covered ground surface adjacent to Building 1742. Wastewater generated from the paint spray booth located inside Building 1742 was discharged to a concrete sump. Sludge (mixture of water and solids), paint, and other debris (trash, leaves, and sediment) were separated by gravity and transferred by gravity flow to the Sewage Treatment Plant (STP) (IT Corporation, 1992). The sump drain pipe intersects the STP sewer line approximately 6 feet directly north of the sump. The sludge was removed periodically and disposed of as hazardous waste; however, the frequency of sludge removal is not known and was not documented.

6.1.2 Operational History

Operations at the site began in 1968 (IT Corporation, 1992); however, Building 1742 is no longer used as a paint shop. During the visual surface inspection, conducted by A.T. Kearney in May 1988, paint drips and stains were observed on the asphalt around the sump and on the metal cover. There is no history of release from this unit.

The RFA reported that the potential for release to soil/groundwater was “low” (Kearney, 1988). The RFA also determined that a low potential existed for a release to surface water and air, and no potential existed for generation of subsurface gas (Kearney, 1988).

6.2 Conclusion

There is low potential for release to all media; however, effluent lines from this unit drain to the STP. Due to the age of the sump, there is a high potential for past and ongoing discharges of hazardous constituents to the STP. Sludge and sediment in the sump and in the sewer lines between the sump and the STP may contain hazardous constituents resulting from past usage of paints containing lead and chromium pigments. The suggested action of the RFA is to conduct an RFI at this unit (Kearney, 1988).

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7.0 SWMU 153 (WSMR-58) VANDAL BURIAL SITE

7.1 SWMU 153 Description and Operational History

7.1.1 Site Description

SWMU 153 (WSMR-58) is located in an area approximately 270 by 140 feet that is located in the Hazardous Test Area of WSMR, adjacent (25 feet south) to the Open Burn/Open Detonation Area (SWMUs 55, 56, and 56A) (Figure 7-1). The site is approximately 7 miles north of the Main Post. The site consists of three distinct cells that have been covered with approximately 2 to 3 feet of soil.

7.1.2 Operational History

During the mid 1950's, missile and rocket parts were buried in three distinct cells and covered with approximately 2 to 3 feet of soil. During the 1988 visual inspection conducted by A.T. Kearney, the unit was found to have been extensively excavated. Exposed missile parts, other unexploded ordnance, and scrap metal were observed in the fill area (Kearney, 1988). The date of the termination of operations at this site is unknown.

7.2 Conclusion

Based on the site operational history, a potential exists for the release of hazardous constituents to the soil. The suggested action from the RFA (Kearney, 1988) is to conduct an RFI at the site.

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8.0 SWMU 163 (WSMR-72) COMMISSARY LANDFILL TRENCH

8.1 SWMU 163 Description and Operational History

8.1.1 Site Description

SWMU 163 (WSMR-72), the Commissary Landfill Trench, is located on Picatinny Avenue, approximately one-quarter mile west of Headquarters Avenue at the WSMR Main Post, 27 miles east-northeast of Las Cruces, New Mexico (Figure 8-1).

8.1.2 Operational History

During the construction of a new WSMR commissary in 1994, an old, inactive landfill was discovered. Little is known about the landfill; it is estimated that the landfill operated between 1946 and 1952 (ASI, 1994a and 1994b). The exact contents or quantities of waste placed in this landfill are unknown (ASI, 1994a). There were no engineered release controls associated with SWMU 163 and no history of release.

SWMU 163 (WSMR-72) was not part of the RFA performed at WSMR; however, SWMU 163 was identified as an area of concern in the 1997 SWMU Inventory Report.

8.2 Conclusion

Based on the site operational history, the potential exists for the release of hazardous constituents to the soil and/or groundwater.

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RELEASE ASSESSMENT REPORT, SWMUS 107, 116, 117, 118, 121 THROUGH 123, 125, 126, 137, 153, AND 163

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9.0 REFERENCES

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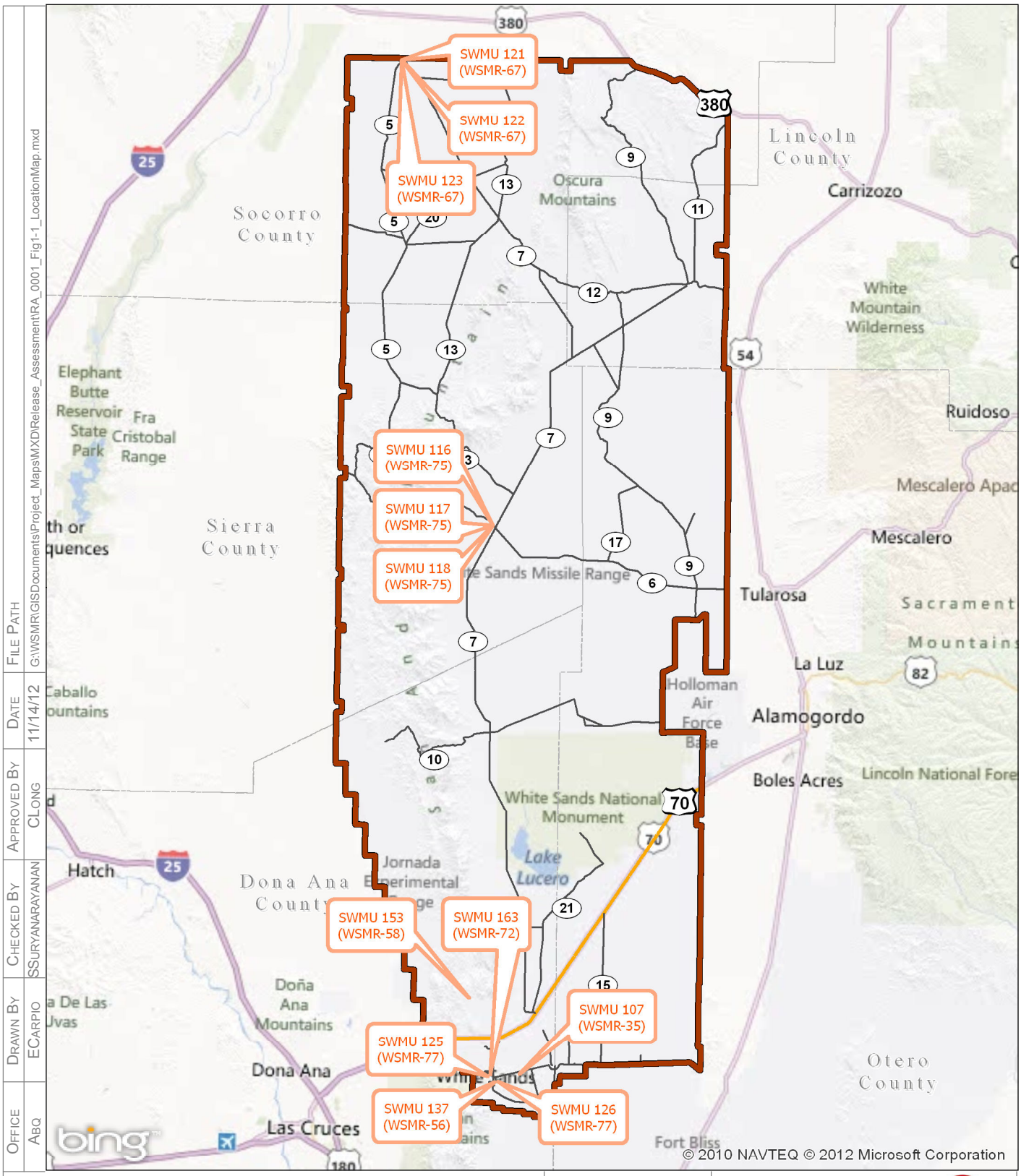
Figures



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LEGEND

- WSMR Installation
- SWMU 107 (WSMR-35) — Site Location
- 25 — Interstate Highway
- 7 — WSMR Route
- 70 — US Highway

NOTES

SWMU = Solid Waste Management Unit

WSMR = White Sands Missile Range

0 5 10 Miles

0 4.75 9.5 19 Kilometers

N

WGS 84 UTM ZONE 13N METERS

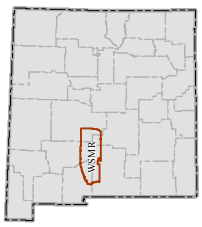

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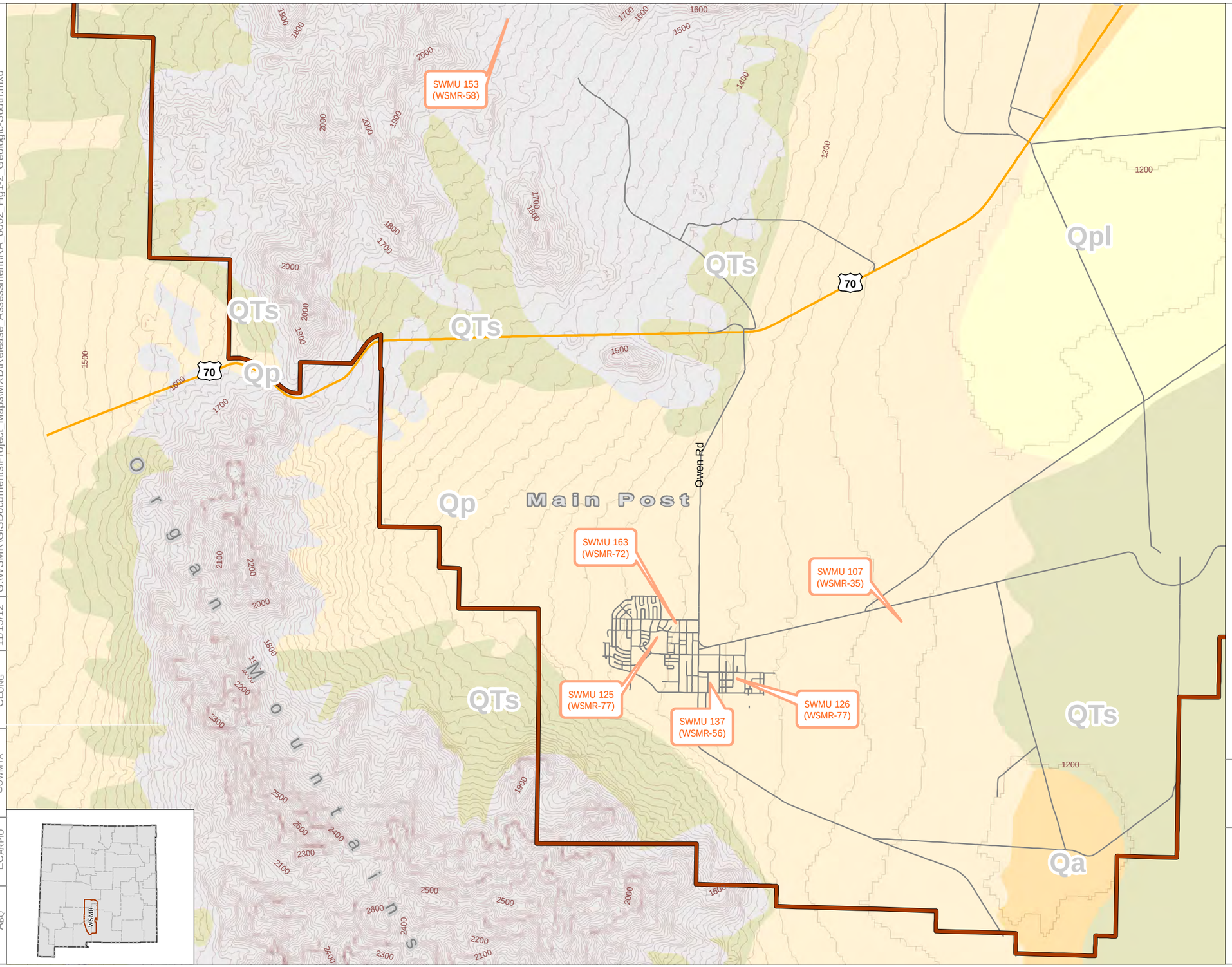
FIGURE 1-1

LOCATION MAP OF SWMU 107 (WSMR-35), SWMUs 116, 117, 118 (WSMR-75), SWMUs 121 - 123 (WSMR-67), SWMU 137 (WSMR-56), SWMUs 125 - 126 (WSMR-77), SWMU 153 (WSMR-58), AND SWMU 163 (WSMR-72)

RELEASE ASSESSMENT REPORT

WHITE SANDS MISSILE RANGE, NM



L E G E N D

- WSMR Installation
- US Highway
- Other Roads
- Elevation Contours
- SWMU 107 (WSMR-35) Site Location
- Consolidated Units
- Qa
- Qp
- Qpl
- QTs

N O T E S

Qa = Alluvium; upper and middle Quaternary

Qp = Piedmont alluvial deposits; upper and middle Quaternary; includes deposits of higher gradient tributaries bordering major stream valleys, alluvial veneers of the Piedmont slope, and alluvial fan

Qpl = Lacustrine and playa-lake deposits; includes associated alluvial and eolian deposits of major lake basins; upper Quaternary

QTs = Upper Santa Fe Group. Includes Camp Rice, Fort Hancock, Palomas, Sierra Ladrones, Ancho, Puye, and Alamosa formations; middle Pleistocene to uppermost Miocene

SWMU = Solid Waste Management Unit

WSMR = White Sands Missile Range

0 1 2 Miles

0 1 2 4 Kilometers

N

WGS 84 UTM ZONE 13N METERS

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FIGURE 1-2

WSMR MAIN POST
GEOLOGIC MAP
SWMU 107 (WSMR-35), SWMU 153 (WSMR-58), SWMUs 125 and 126 (WSMR-77), SWMU 137 (WSMR-56), and SWMU 163 (WSMR-72)
RELEASE ASSESSMENT REPORT
WHITE SANDS MISSILE RANGE, NM

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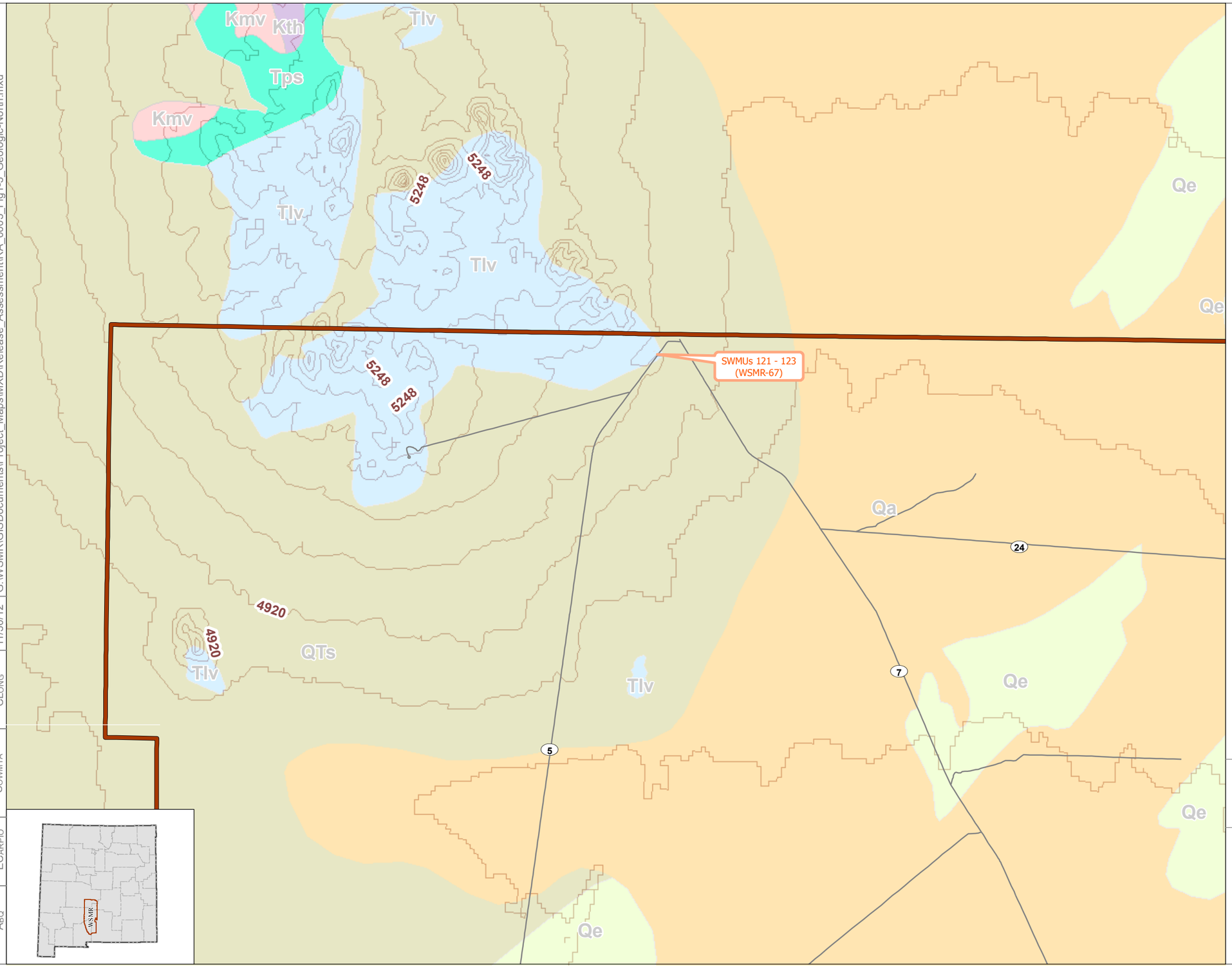

L E G E N D

	WSMR Installation		Qe
24	WSMR Roads		Qa
	Other Roads		QTs
	Elevation Contours		Tlv
SWMU 121 (WSMR-67)	Site Location		Tps
	Kth		Kmv

N O T E S

Tps = Paleogene sedimentary units; includes Baca, Galisteo, El Rito, Blanco Basin, Love Ranch, Lobo, Sander Canyon, Shunk Ranch, Timberlake, and Cub Mountain Formations

Tlv = Lower Oligocene and Eocene volcanic rocks, undifferentiated; dominantly intermediate composition, with interbedded volcaniclastic rocks; (31 - 44 Ma)

Kmv = Mesaverde Group includes the Gallup Sandstone, Crevasse Canyon Formation, Point Lookout Sandstone, Menefee Formation, and Cliff House Sandstone

Kth = Tres Hermanos Formation; formerly designated as Lower Gallup Sandstone in the Zuni Basin; Turonian

Qa = Alluvium; upper and middle Quaternary

Qe = Eolian deposits

QTs = Upper Santa Fe Group. Includes Camp Rice, Fort Hancock, Palomas, Sierra Ladrones, Ancho, Puye, and Alamosa Formations; middle Pleistocene to uppermost Miocene

SWMU = Solid Waste Management Unit

WSMR = White Sands Missile Range

0 0.5 1 Miles

0 0.5 1 2 Kilometers

N

WGS 84 UTM ZONE 13N METERS

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FIGURE 1-3

WSMR STALLION RANGE
GEOLOGIC MAP
SWMUs 121 - 123 (WSMR-67)
RELEASE ASSESSMENT REPORT
WHITE SANDS MISSILE RANGE, NM

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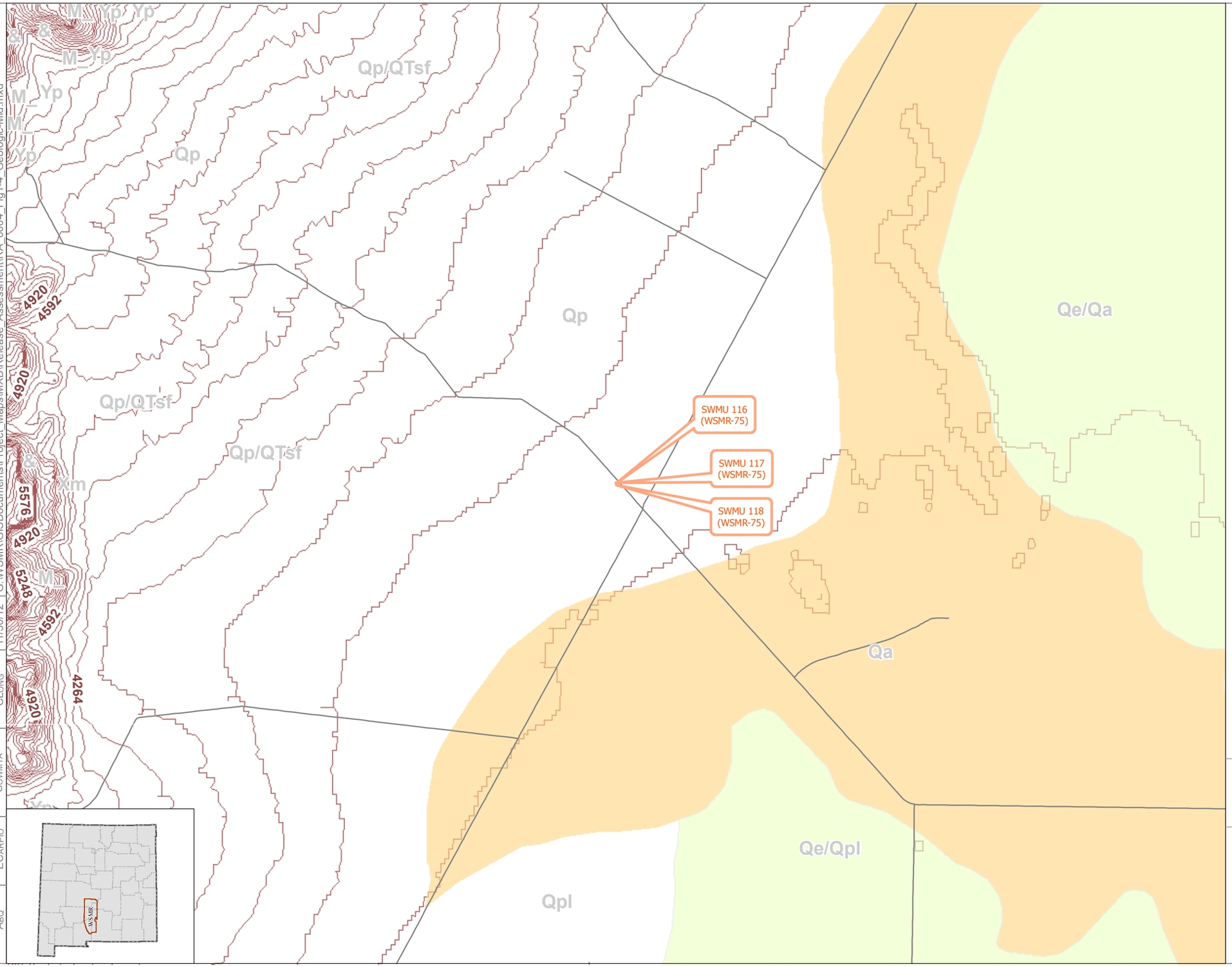

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Legend

- WSMR Installation
- WSMR Roads (24)
- Other Roads
- Elevation Contours
- SWMU 116 (WSMR-75) Site Location
- M_
- Yp
- Qe
- Qa
- QTs
- Qp
- Qpl
- QTsf

Notes

M_ = Mississippian through Cambrian rocks, undivided; includes Lake Valley Limestone; Mississippian; Devonian rocks, undivided; El Paso Formation and Montoya Group (or Formation); Ordovician; and Bliss Sandstone; Cambrian and Ordovician

Qa = Alluvium; upper and middle Quaternary

Qe = Eolian deposits

Qp = Piedmont alluvial deposits; upper and middle Quaternary; includes deposits of higher gradient tributaries bordering major stream valleys, alluvial veneers of the piedmont slope, and alluvial fans

Qpl = Lacustrine and playa-lake deposits; includes associated alluvial and eolian deposits of major lake basins; upper Quaternary

QTs = Upper Santa Fe Group. Includes Camp Rice, Fort Hancock, Palomas, Sierra Ladrones, Ancho, Puye, and Alamosa Formations; middle Pleistocene to uppermost Miocene

QTsf = Santa Fe Group, undivided. Basin fill of Rio Grande rift region; middle Pleistocene to uppermost Oligocene

Yp = Middle Proterozoic plutonic rocks, undivided

SWMU = Solid Waste Management Unit
WSMR = White Sands Missile Range

0 0.5 1 Miles
0 0.5 1 2 Kilometers

N
WGS 84 UTM Zone 13N
Meters

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Figure 1-4

WSMR Rhodes Canyon
Geologic Map
SWMUs 116 - 118 (WSMR-75)
Release Assessment Report
White Sands Missile Range, NM

L E G E N D

- SWMU Boundary
- WSMR Installation
- WSMR Roads
- Fence

N O T E S

SWMU = Solid Waste Management Unit

WSMR = White Sands Missile Range

0 50 100
Feet

0 10 20 40
Meters

N

WGS 84 UTM ZONE 13N
METERS

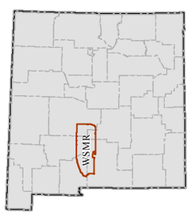

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FIGURE 2-1

SITE LOCATION MAP
SWMU 107 (WSMR-35)
RELEASE ASSESSMENT REPORT
WHITE SANDS MISSILE RANGE, NM

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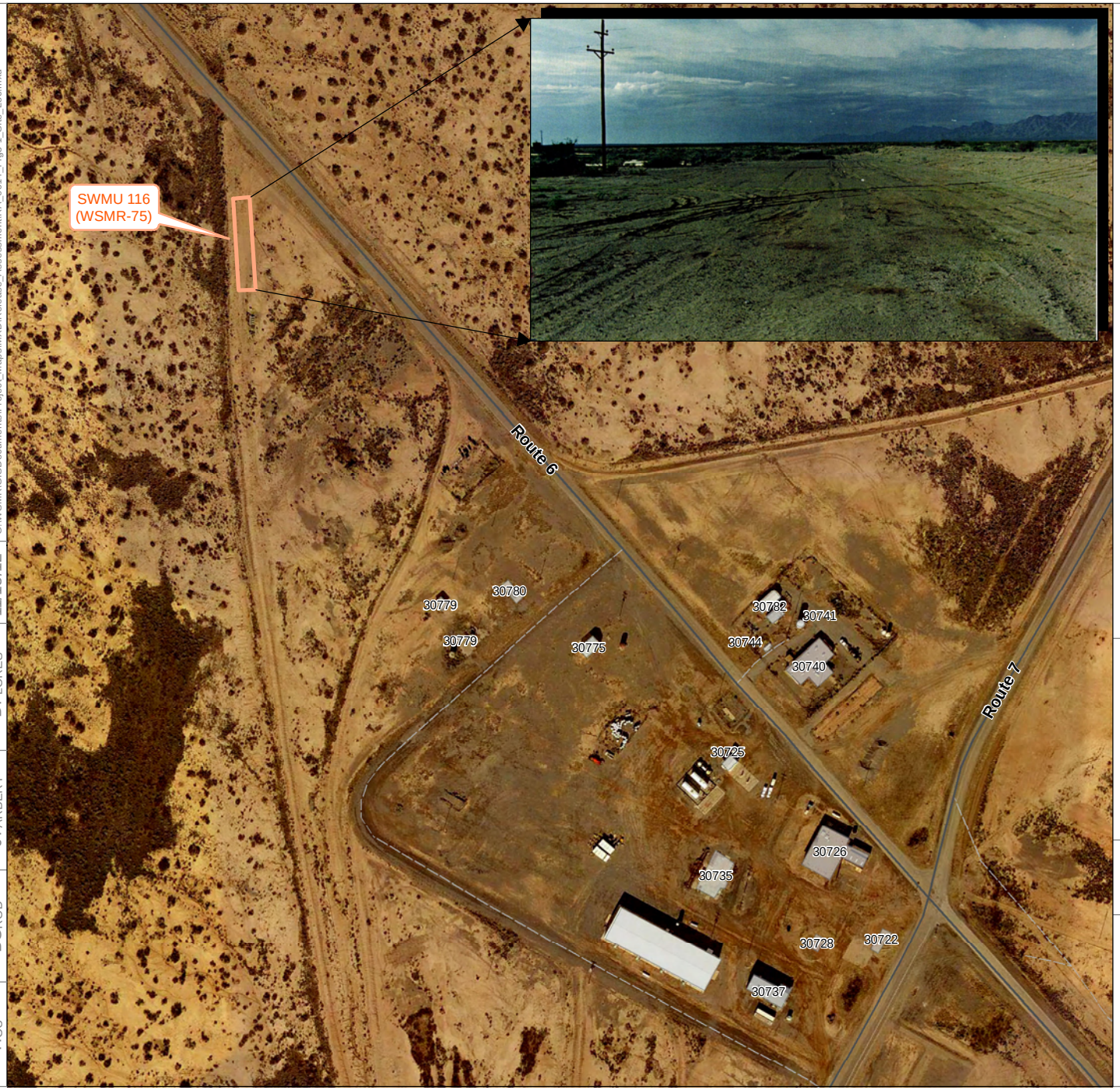

Legend

- SWMU-116 (WSMR-75)
- Structures
- WSMR Route
- Arterial Roads

Notes

SWMU = Solid Waste Management Unit

WSMR = White Sands Missile Range

Note:
SWMUs 116, 117, and 118 were administratively combined into SWMU 116.

0 25 50 100 Meters

0 75 150 300 Feet

N

WGS 84 UTM Zone 13N Meters

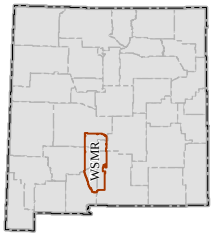

Figure 3-1

Site Location Map
SWMU 116
(WSMR-75)
Release Assessment Report
White Sands Missile Range, NM

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L E G E N D

WSMR Installation

SWMUs 121 - 123 (WSMR-67)

N O T E S

SWMU = Solid Waste Management Unit

WSMR = White Sands Missile Range

0 20 40 80
Meters

0 125 250 500
Feet

N

WGS 84 UTM Zone 13N
Meters

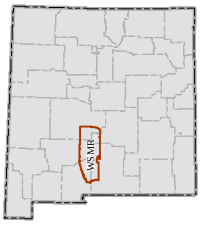

Figure 4-1

Site Location
Asphalt Tanks at
Stallion Range
SWMUs 121 - 123 (WSMR-67)
Release Assessment Report
White Sands Missile Range, NM

LEGEND

- WSMR Installation
- SWMUs 125 and 126 (WSMR-77)
- WSMR Route
- Arterial Roads

NOTES

SWMU = Solid Waste Management Unit
WSMR = White Sands Missile Range

0 60 120 240 Meters
0 200 400 800 Feet

N

WGS 84 UTM ZONE 13N METERS

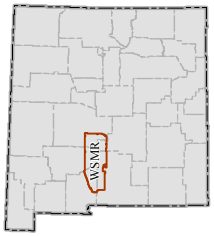

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FIGURE 5-1

SITE LOCATION MAP
SWMUS 125 AND 126
(WSMR-77)
RELEASE ASSESSMENT REPORT
WHITE SANDS MISSILE RANGE, NM

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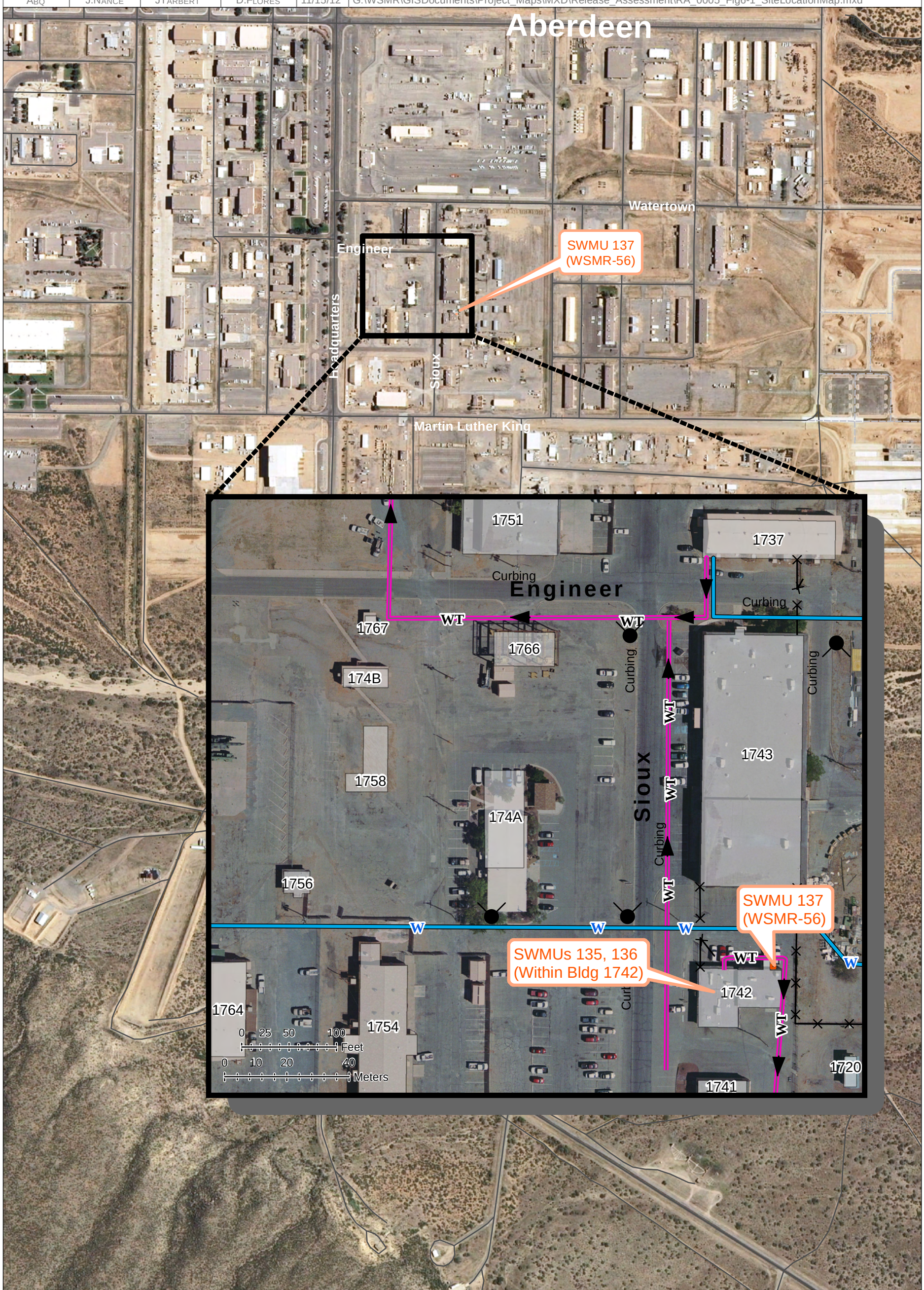

LEGEND

- SWMU Boundary
- WSMR Installation
- Fence
- WT Waste Water Main Line/ Service Line
- W Domestic Water Main Pipe
- Fire Hydrant
- Direction of Flow

NOTES

SWMU = Solid Waste Management Unit

WSMR = White Sands Missile Range

0 150 300 450 600 Feet

0 50 100 200 300 Meters

N

WGS 84 UTM Zone 13N Meters

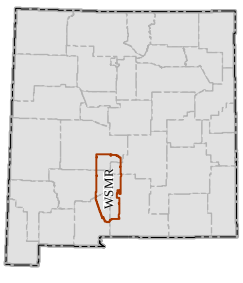

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Figure 6-1

Site Location Map
SWMU 137 (WSMR-56)
Release Assessment Report
White Sands Missile Range, NM

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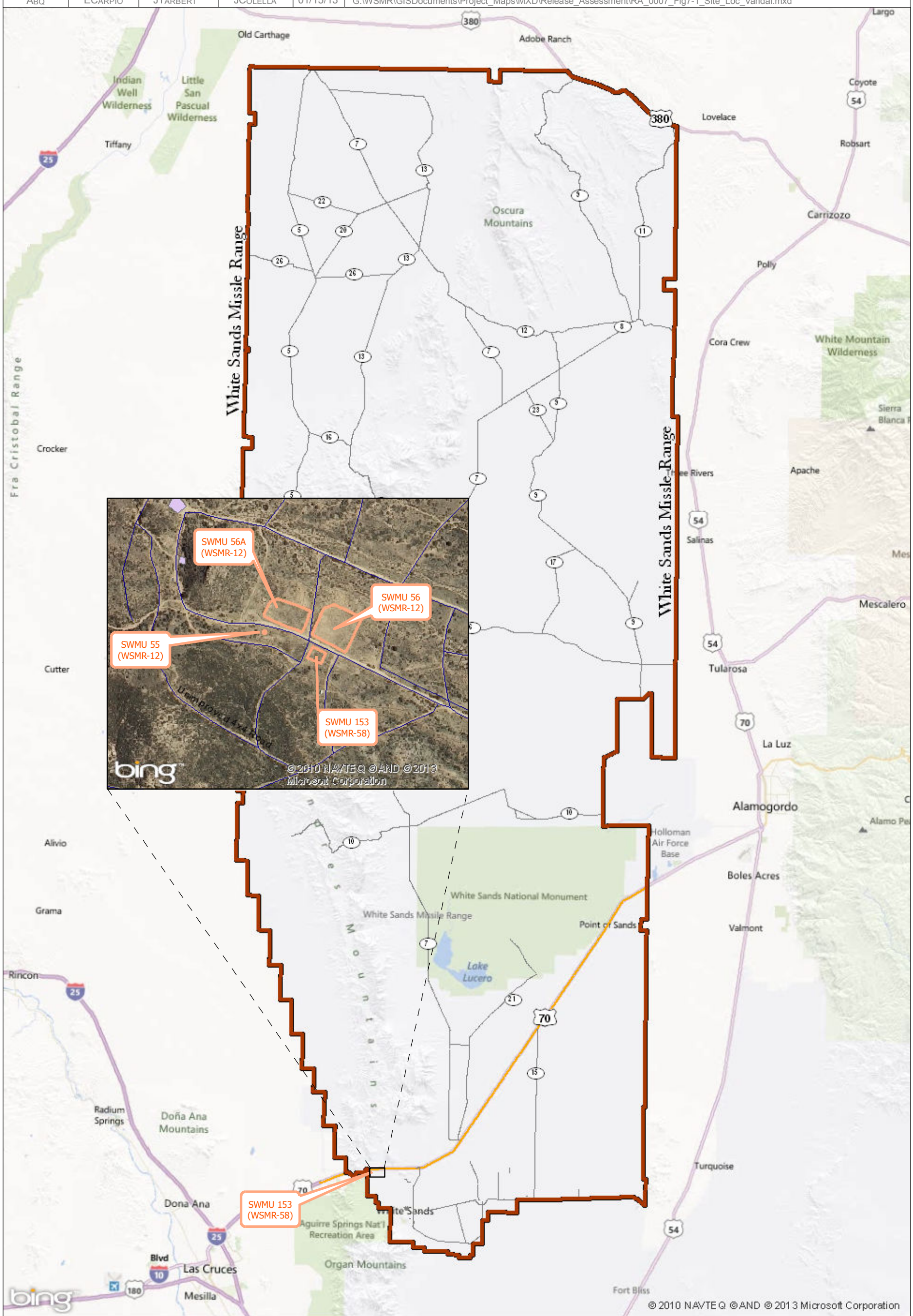

LEGEND

- WSMR Installation
- Interstate Highway
- WSMR Federal Road
- US Highway
- SWMU Boundary
- SWMU 153 (WSMR-58) Site Location

NOTES

RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facilities Investigation
SWMU = Solid Waste Management Unit
WSMR = White Sands Missile Range

0 5 10 Miles
0 5 10 20 Kilometers

N
WGS 84 UTM Zone 13N Meters

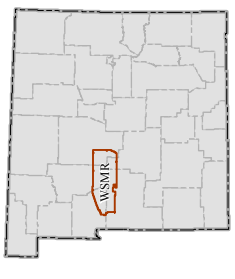

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Figure 7-1
SWMU 153 (WSMR-58)
Site Location Map
Former Vandal Burial Site
Release Assessment Report
White Sands Missile Range, NM

Legend

- Commissary Landfill Trench
- Fence
- Construction Area
- Decontamination Area
- Roll-Off Bins Temporary Storage Area

Notes

SWMU = Solid Waste Management Unit
WSMR = White Sands Missile Range

0 10 20 40 Meters
0 37.5 75 150 Feet

N

WGS 84 UTM Zone 13N
Meters

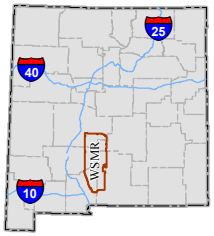

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Figure 8-1
Site Plan
SWMU 163 (WSMR-72)
Release Assessment Report
White Sands Missile Range, NM

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