

Programmatic Agreement Attachments 1-18
MCB Hawaii Basing of MV-22 and H-1 Aircraft in Hawaii

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**MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA) Attachment 1**

PROPOSED HAWAII BASING OF MV-22 AND H-1 AIRCRAFT		
PROPOSED UNDERTAKING: PROJECT LIST		
ALTERNATIVE	LOCATION / PROJECT NAME	PROPOSED IMPROVEMENTS/RENOVATIONS
A	MCB Hawaii Kaneohe Bay: VMM hangar and apron	Realign Mokapu Road
		Demolish warehouses and storage facilities (4005, 4075, 4000, 584, 1197, 5068, 6678, 6679, 6680, 6681, 6682, and 6683)
		Renovate warehouses (4088, 250, and 271)
		Replace/relocate CIF warehouse (4075)
		Replace MAG-24 warehouse (4005)
		Replace family housing and operations warehouse (4005 and 4000)
		Replace MCCS self-storage facilities (6678, 6679, 6680, 6681, 6682, and 6683)
		Construct hangar and IMF
		Construct apron, wash rack, and taxiway
		Relocate aircraft rinse facility
A	MCB Hawaii Kaneohe Bay: HMLA hangar and apron	Renovate Hangar 101
		Resurface and reseal aprons for HMLA
A	MCB Hawaii Kaneohe Bay: MALS-24 maintenance shops, warehouse, and armory	Demolish engine test cell near the corrosion control hangar (1178)
		Expand composite shop at corrosion control hangar (5069)
		Demolish van pads (5049, 5050, 5053, 5064)
		Construct new van pads
		Construct MALS-24 warehouse
		Expand armory (4054)
A	MCB Hawaii Kaneohe Bay: MAG-24 HQ	Demolish MAG-24 HQ (301)
		Construct MAG-24 HQ
		Construct parking structure
A	MCB Hawaii Kaneohe Bay: MCAS helicopter landing pad	Construct helicopter landing pad for MV-22
A	MCB Hawaii Kaneohe Bay: Bachelor housing	Demolish existing BEQs (225, 226, 227, 228, 229, and 230) and associated structures (3000, 1001 to 1006)
		Replace with three four-story BEQs
		Demolish existing building (B1094) for parking structure
		Construct parking structure
		Improve existing parking lot
B	MCB Hawaii Kaneohe Bay: VMM hangar and apron (West Field)	Demolish facilities and structures (14, 15, 17, 612, 601, 602, 603, 605, 620, 3076, 3077, 3078, 3079, 3087, 6183, 3099, 995, and 6478)
		Demolish aircraft power check pad (5020)
		Construct hangar and IMF
		Construct apron, wash rack, and taxiway
		Replace MCAS storage (601, 602, 620)
		Replace MALS storage (603)
		Replace EOD offices and training facility (605)
		Replace MALS engine test facility (6183)
		Replace game warden office and kennel (3099)
		Replace aircraft power check pad (5020)
		Realign Sumner Road
B	Runway underpass	Construct runway underpass Mokapu Rd.
B	Bachelor housing	Demolish existing BEQs (227, 228, 229, and 230) and associated structures (3000, 1001 to 1006) and B1094

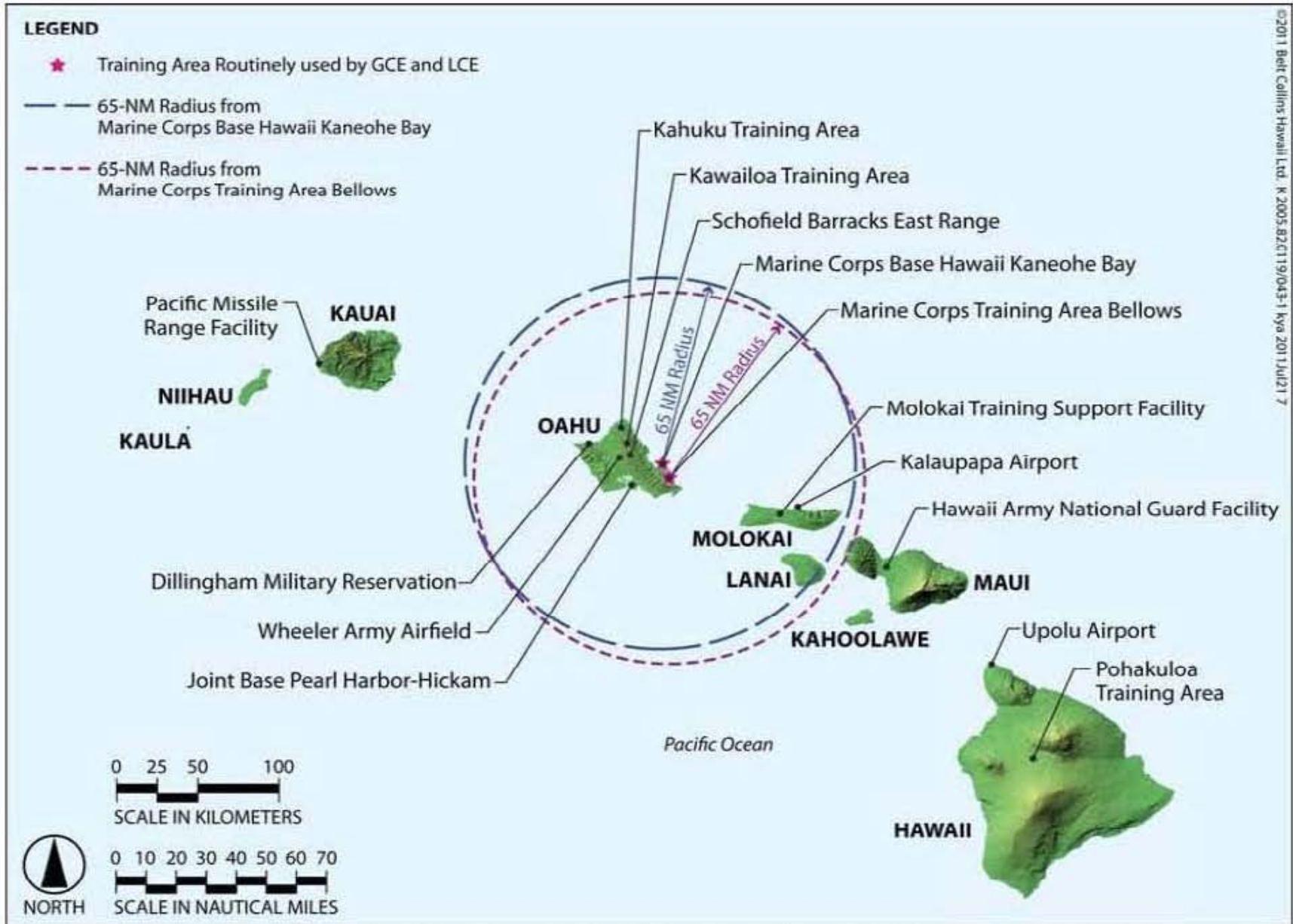
**MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA) Attachment 1**

PROPOSED HAWAII BASING OF MV-22 AND H-1 AIRCRAFT PROPOSED UNDERTAKING: PROJECT LIST		
ALTERNATIVE	LOCATION / PROJECT NAME	PROPOSED IMPROVEMENTS/RENOVATIONS
		Replace with two six-story BEQs
		Demolish existing building (1094) for parking structure
		Construct parking structure
		Improve existing parking lot
not applicable (n/a)	Marine Corps Training Area Bellows (MCTAB): Landing Zone (LZ) Gull	Reinforce concrete
n/a	MCTAB: LZ Hawk	Reinforce concrete
n/a	MCTAB: LZ Owl	Reinforce concrete
n/a	MCTAB: LZ Noni	Reinforce concrete
n/a	Pohakuloa Training Area (PTA): LZ Bravo	Expand existing helipads
n/a	Molokai Training Support Facility (MTSF), Hoolehua, Molo	Clear, grub, grade, pave
		Install fence
	Aviation Training: MCB Hawaii Kaneohe	Aviation Training Activities: Field Carrier Landing Practice (FCLP), familiarization/instrument, Confined Area Landings (CAL), night vision device (NVD)
n/a	Aviation Training: MCTAB	MAGTF operations, CAL, NVD
n/a	Aviation Training: Army Training Areas Oahu	Terrain Following (TERF) flights, Assault Support Operations, MAGTF operations, CAL, NVD
n/a	Aviation Training: Dillingham Airfield	CAL, MAGTF operations, NVD
n/a	Aviation Training: PTA	All training except FCLP. Live fire is also conducted at PTA.
n/a	Aviation Training: Pacific Missile Range Facility (PMRF) Kauai	MAGTF operations, CAL, NVD, inert target range on Kaula island. Live fire would also be conducted within PMRF's water training range. Additional training events could include electronic/counter-electronic warfare training.
n/a	Aviation Training: Kalaupapa Airport	CAL, NVD
n/a	Aviation Training: MTSF	Refueling (aircraft may land either at MTSF or at the nearby Molokai Airport)
n/a	Aviation Training: Hawaii Army National Guard (HIARNG) Facility, Maui	Facility to serve as an expeditionary training site for a squadron detachment. Training at the HIARNG facility would coincide with training at PTA.

MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
 Programmatic Agreement (PA) Attachment 1

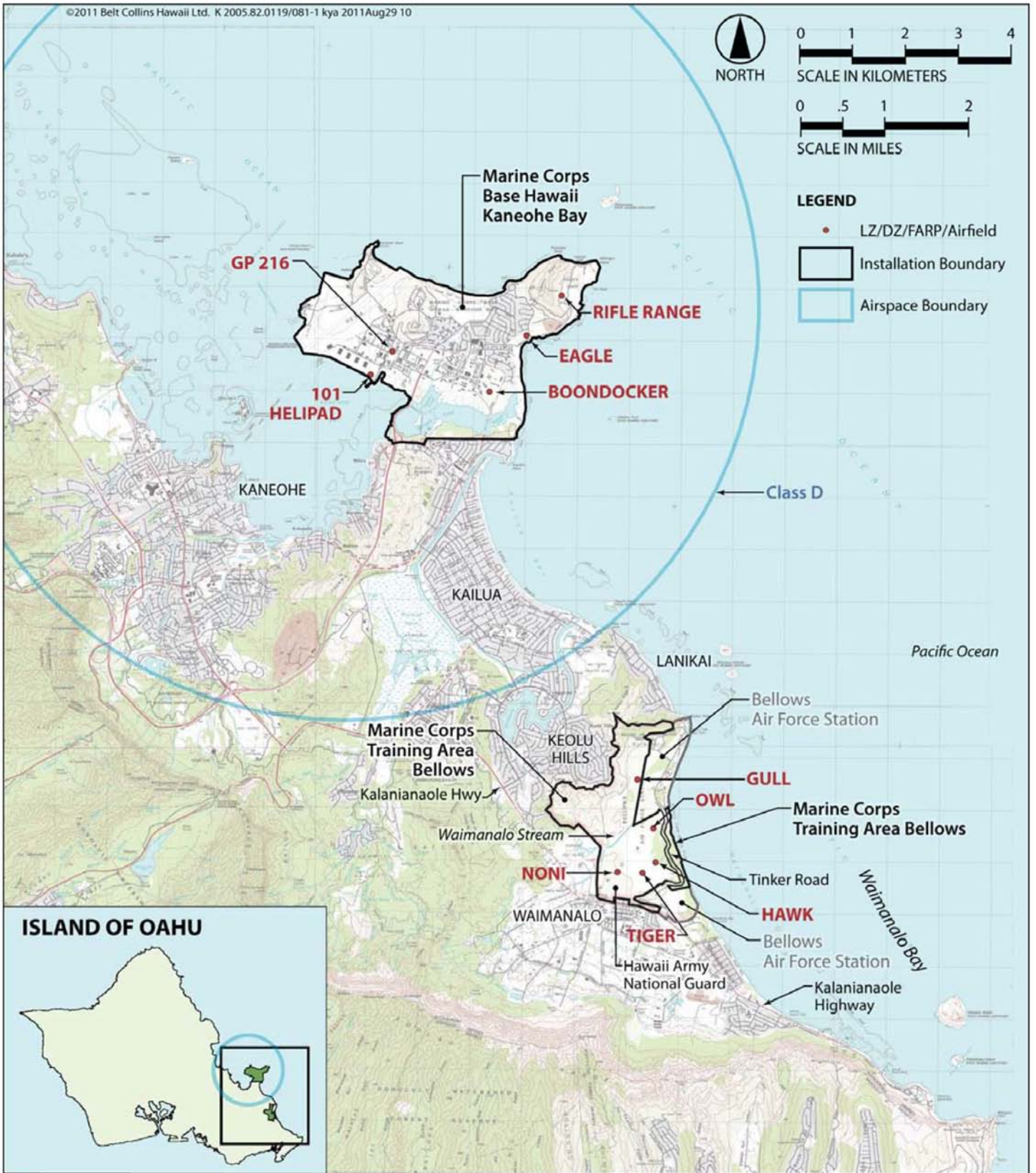


Proposed Construction and Improvements at MCB Kaneohe Bay



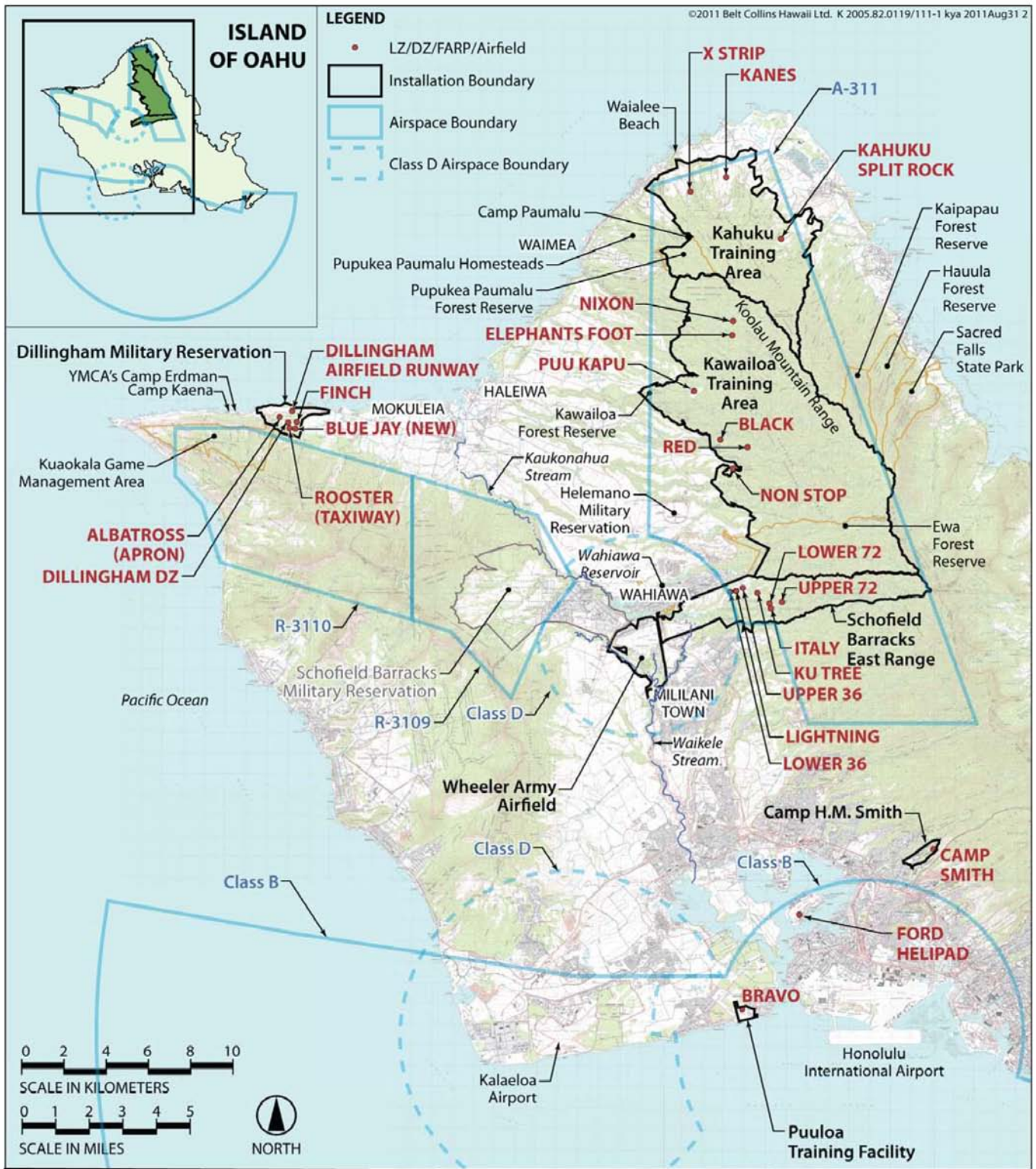
Military Training Areas and Airports in Hawaii

**MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA)
Attachment 3**



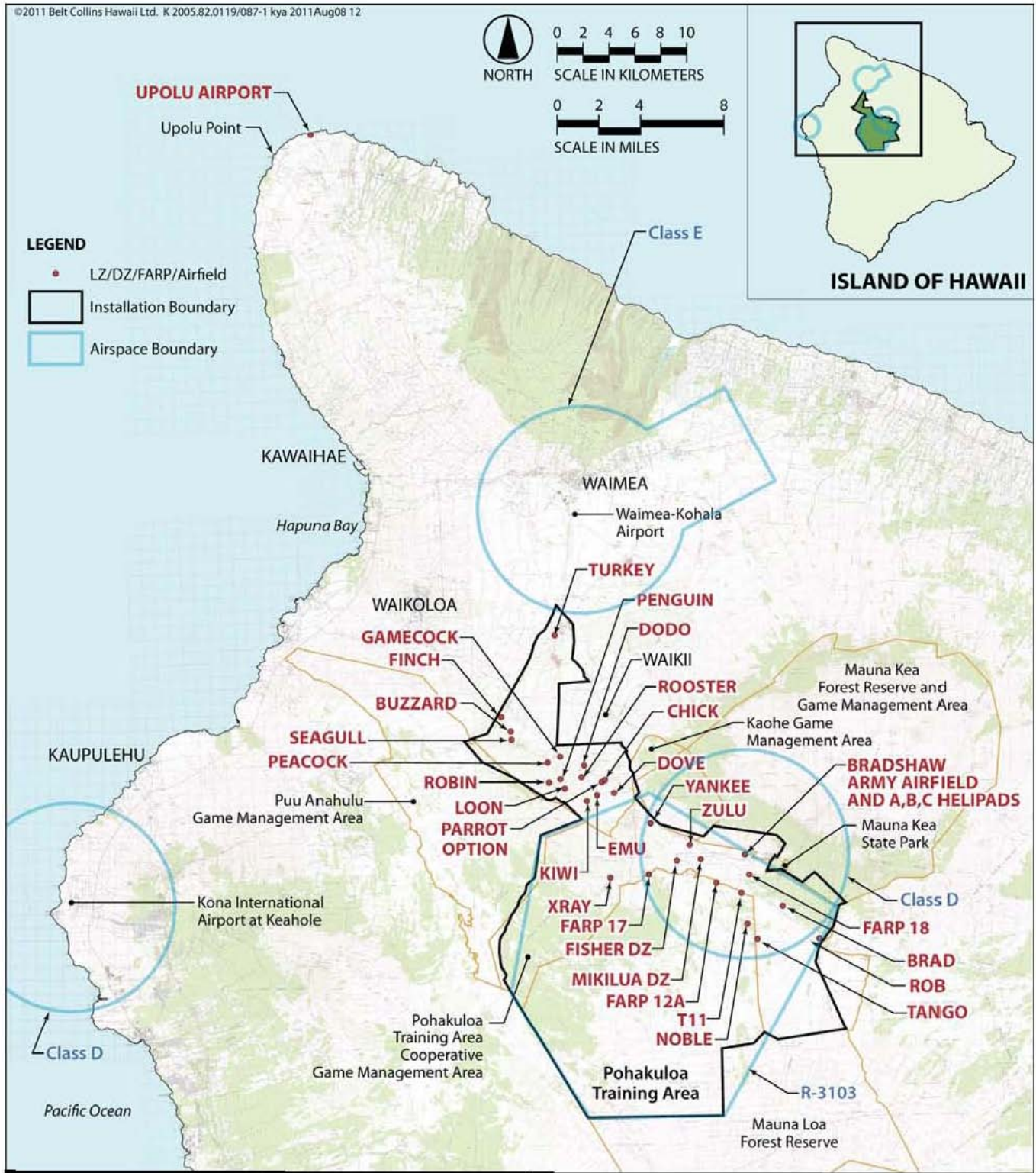
Training Areas MCB Hawaii Kaneohe Bay & MCTAB

**MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA)
Attachment 4**



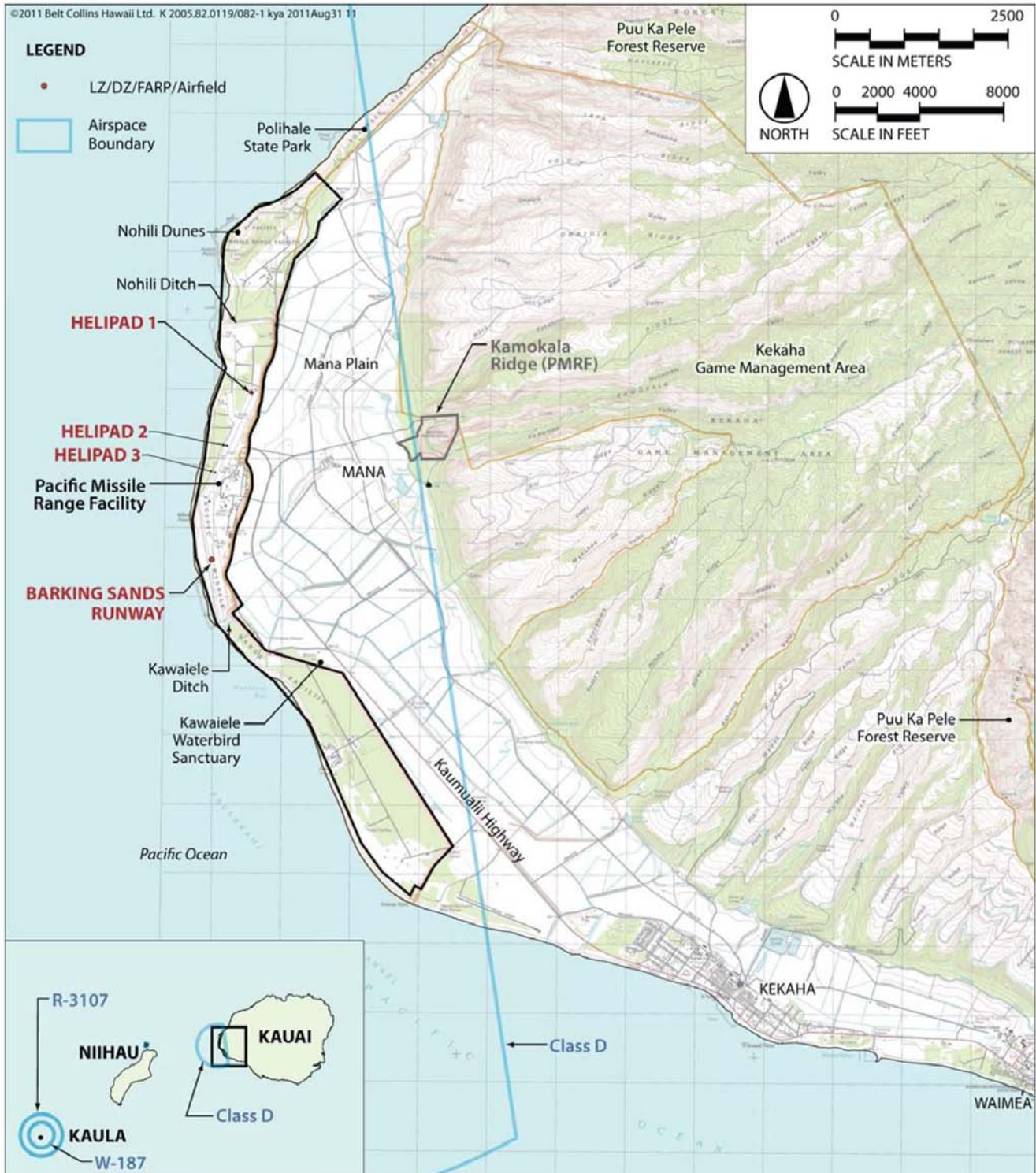
Army Training Areas on O`ahu

**MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA)
Attachment 5**



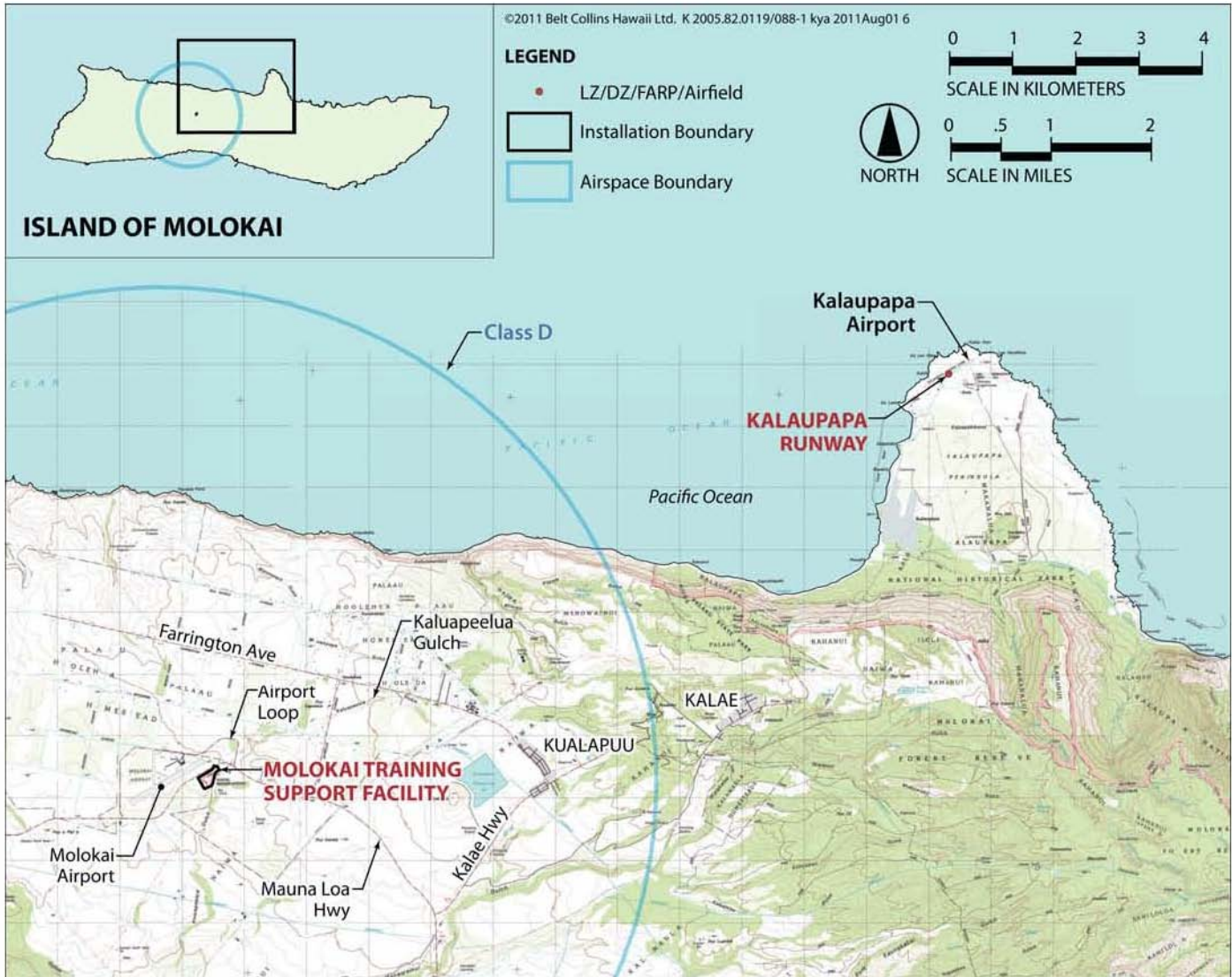
State Airports and Army Training Areas on Hawai`i Island

**MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA)
Attachment 6**



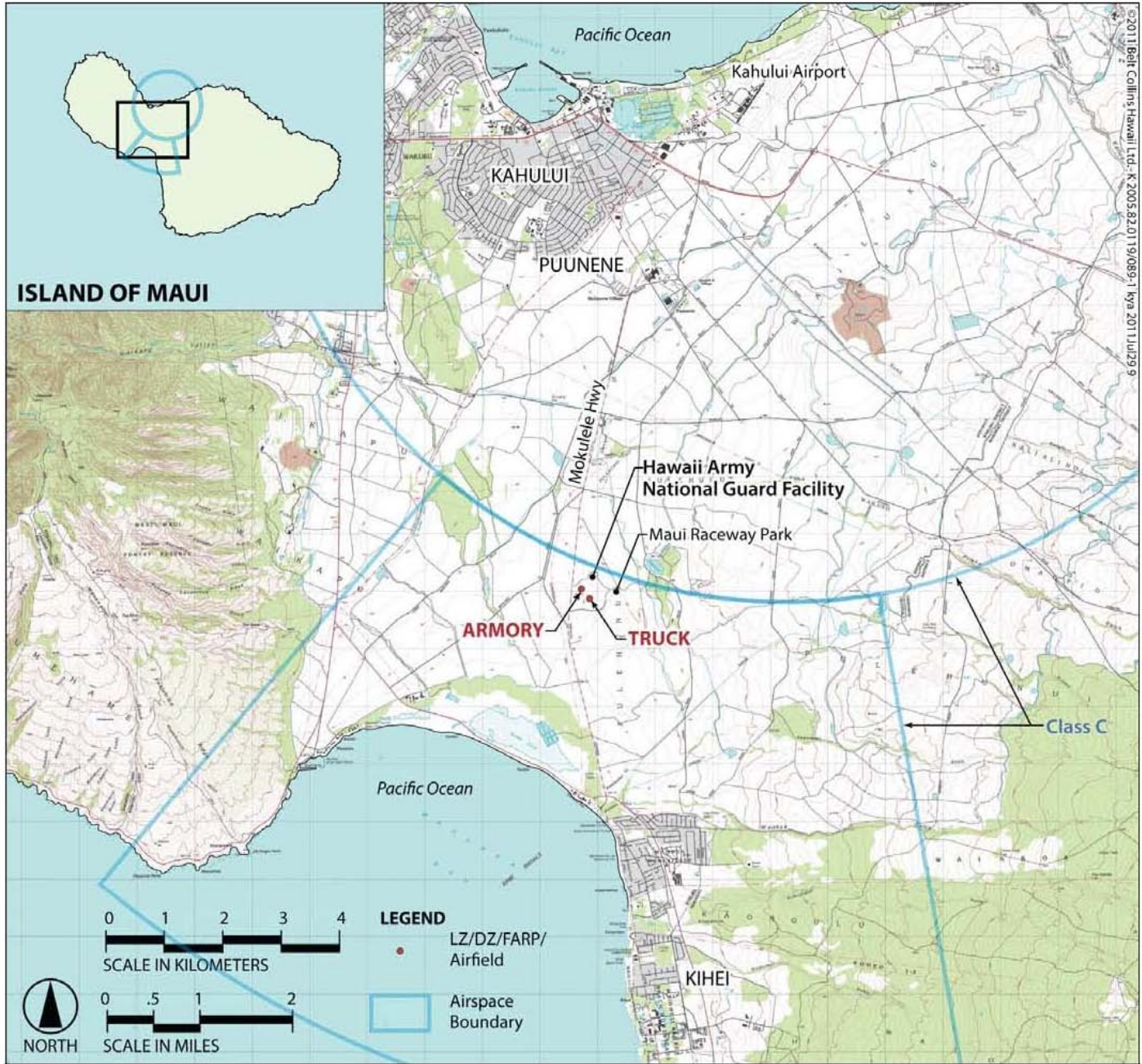
Pacific Missile Range Facility (PMRF) Kauai Island

**MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA)
Attachment 7**



Pacific Missile Range Facility (PMRF) Kauai Island

MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS
Programmatic Agreement (PA)
Attachment 8



Pu`unene Hawaii Army National Guard Facility Maui Island

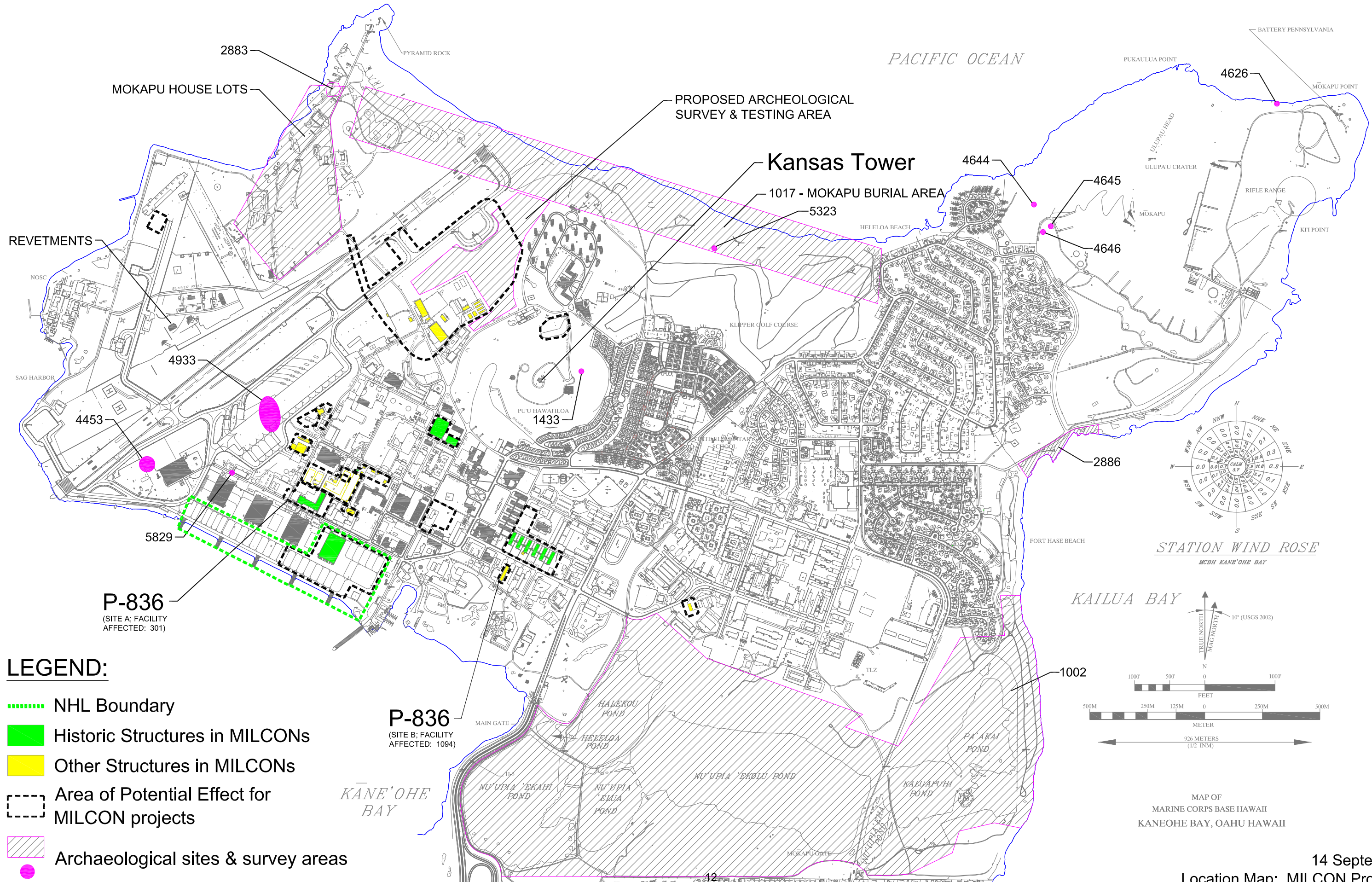
HAWAII BASING OF MV-22 AND H-1 AIRCRAFT

IDENTIFICATION OF HISTORIC STRUCTURES

P-836

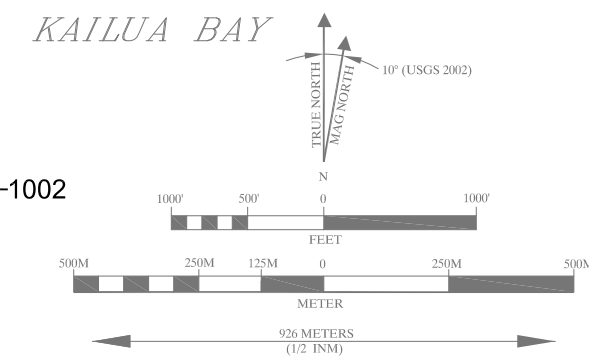
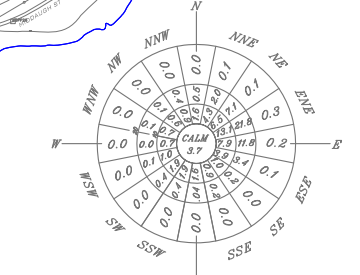
**MAG-24 HEADQUARTERS
AND PARKING BUILDING**

P-836 MAG-24 HEADQUARTERS AND PARKING



LEGEND:

- ⋯ NHL Boundary
- Historic Structures in MILCONs
- Other Structures in MILCONs
- Area of Potential Effect for MILCON projects
- Archaeological sites & survey areas



MAP OF
MARINE CORPS BASE HAWAII
KANE'OHE BAY, OAHU HAWAII

HISTORIC STRUCTURES AFFECTED

FACILITY 301 – SQUADRON OFFICES & STORAGE BUILDING

Facility 301 is eligible for inclusion on the National Register of Historic Places under Criterion A for its association with the initial development of Naval Air Station Kaneohe Bay in anticipation of U.S. involvement in WWII. Facility 301, constructed in 1941, existed at the time of the Japanese attack on December 7, 1941, and was one of the initial base facilities serving as the offices for the squadrons of pilots who operated the aircraft across the street. This facility was surveyed and found eligible as part of the *Marine Corps Base Hawaii, Kaneohe Bay, Historic Building Inventory* dated June 2005.

It is a one-story L-shaped concrete building with a steel roof structure. It has a low-slope gable roof in one section of the building and a flat roof in another section. There is an open lanai along most sides of the L-shaped plan. Historically the windows were steel framed multi-lite casement and fixed units, but many of the windows have been replaced with aluminum units. The historic massing of the facility and general fenestration pattern remain.

Several modifications have been made to the building since WWII, most of which affect the interior. Some historic open, interior spaces have been partitioned into small offices. Many historic, interior, single-lite doors remain. Most exterior windows have been replaced with aluminum windows, air-conditioning units, or painted over. Portions of the historic tongue and groove roof sheathing have been concealed by hung ceilings. Most of the historic bare concrete floors have been covered with resilient tiles or carpeting.

The project plans are to demolish this facility.



Figure 2-2: Photograph of the Squadron Offices & Storage Building, taken 9 September 1941. Source: National Archives.



Figure 2-3: Photograph of the Squadron Offices & Storage Building. Photo taken in May 2004.

ADDITIONAL STRUCTURES AFFECTED

FACILITY 1094 – BACHELOR ENLISTED FACILITY

Facility 1094 was constructed in 1953 as unaccompanied personnel housing, is not a contributing element of a listed or eligible National Register of Historic Places district, nor does it have religious or cultural significance for Native Hawaiian organizations. The Advisory Council of Historic Preservation has issued *Program Comment For Cold War Era Unaccompanied Personnel Housing (1946-1974)*.

The project plans are to renovate this facility; therefore, the Program Comment applies. Renovation is an action requiring no further review by the Program Comment. A photograph of the facility is provided.



Figure 2-4: Facility 1094.

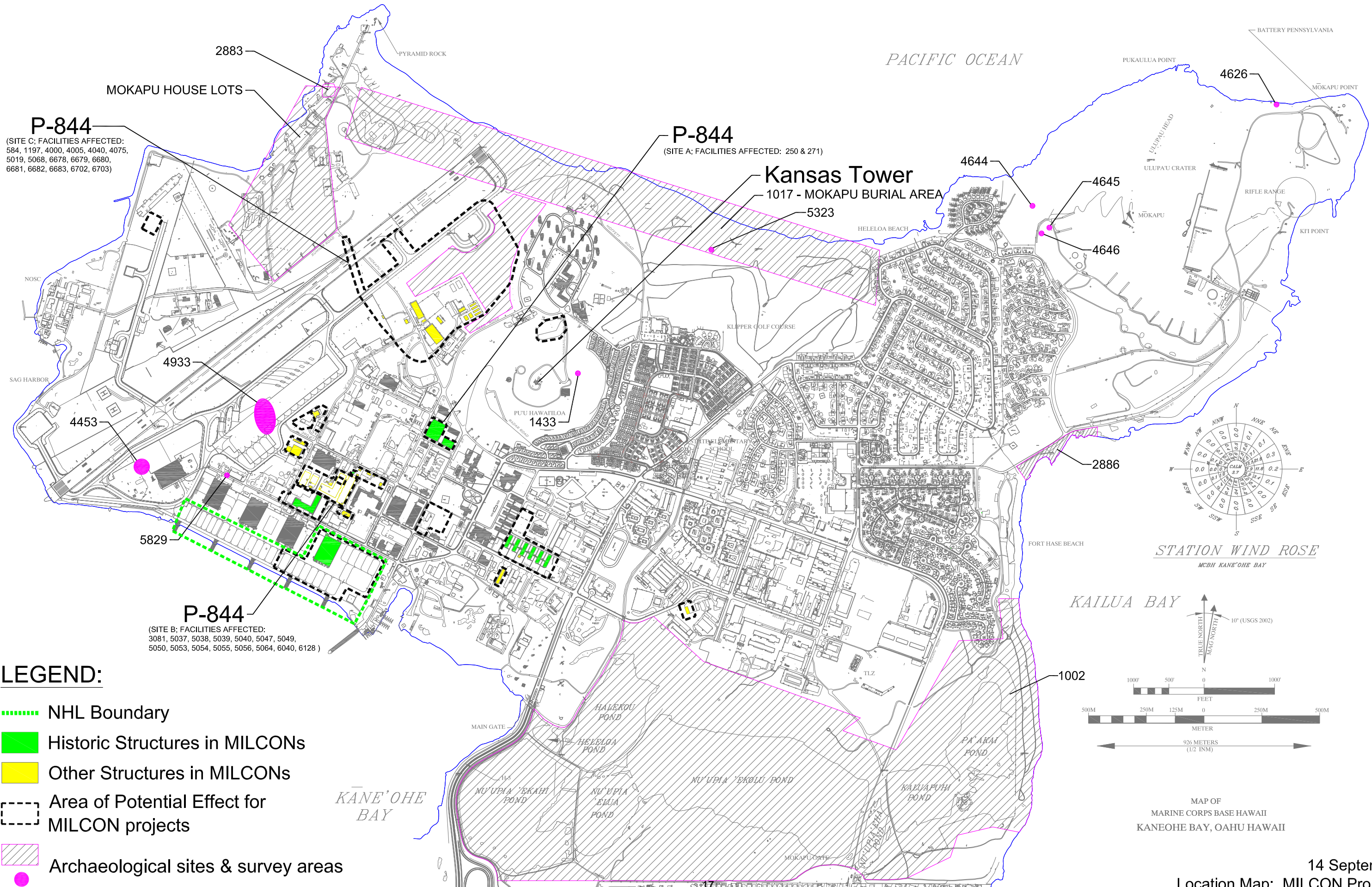
HAWAII BASING OF MV-22 AND H-1 AIRCRAFT

IDENTIFICATION OF HISTORIC STRUCTURES

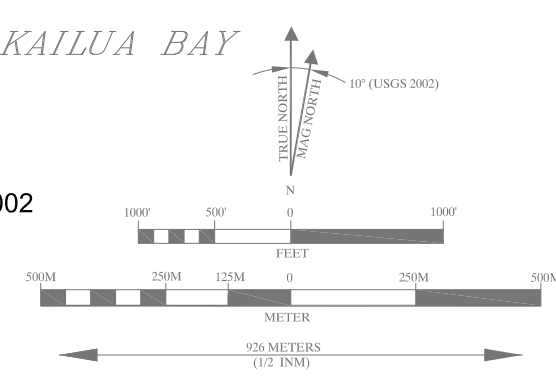
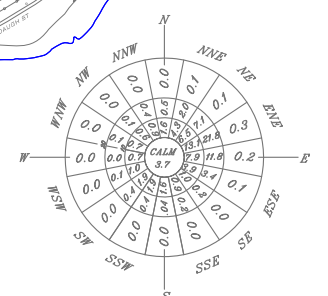
P-844

MV-22 INFRASTRUCTURE UPGRADES

P-844 MV-22 INFRASTRUCTURE UPGRADES



- ⋯ NHL Boundary
- Historic Structures in MILCONs
- Other Structures in MILCONs
- Area of Potential Effect for MILCON projects
- Archaeological sites & survey areas



MAP OF
MARINE CORPS BASE HAWAII
KANE OHE BAY, OAHU HAWAII

P-844 MV-22 INFRASTRUCTURE UPGRADES PHASE I

PROJECT DESCRIPTION

This project constructs one multi-story Type II modified high bay aircraft maintenance hangar to provide weather protected shelter for inspection, servicing, maintenance for the MV-22 squadron. This project also provides for MV-22 washrack facility, high bay MV-22 warehouse, POV parking, an aircraft parking apron, line vehicle parking, aircraft taxiway shoulder improvements to the taxiways, relocation of Mokapu Road, and utility infrastructure. This project also provides temporary facilities for displaced tenants of buildings that will be demolished in this phase, the renovation of warehouse buildings 250 and 271 and the construction of replacement MCCS self storage facilities. Facility 271 currently has a small restroom facility that is connected with a covered walkway. A small addition is planned for the existing restroom structure.

This project affects three areas of the base. For organizational purposes they are divided into Sites A, B, and C as indicated in the following figures.

LOCATION PLANS



Figure 3-1: Partial site plan of MCB Hawaii Kaneohe Bay illustrating site A. Work on warehouse facilities 250 and 271 will primarily be reorganization of the interior storage systems.

Identification of Historic Structures

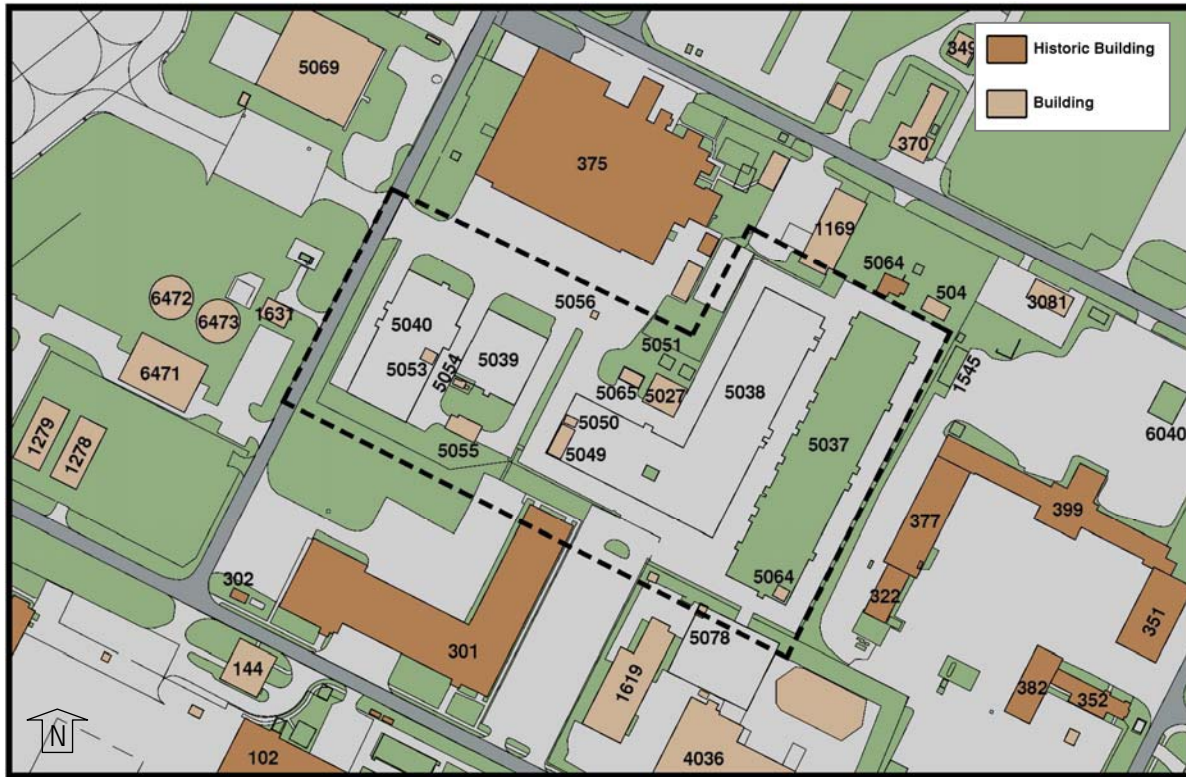


Figure 3-2: Partial site plan of MCB Hawaii Kaneohe Bay illustrating site B. The facilities within the dashed boundary are proposed for demolition. The MALs Supply Warehouse and van pads will be constructed in this area.

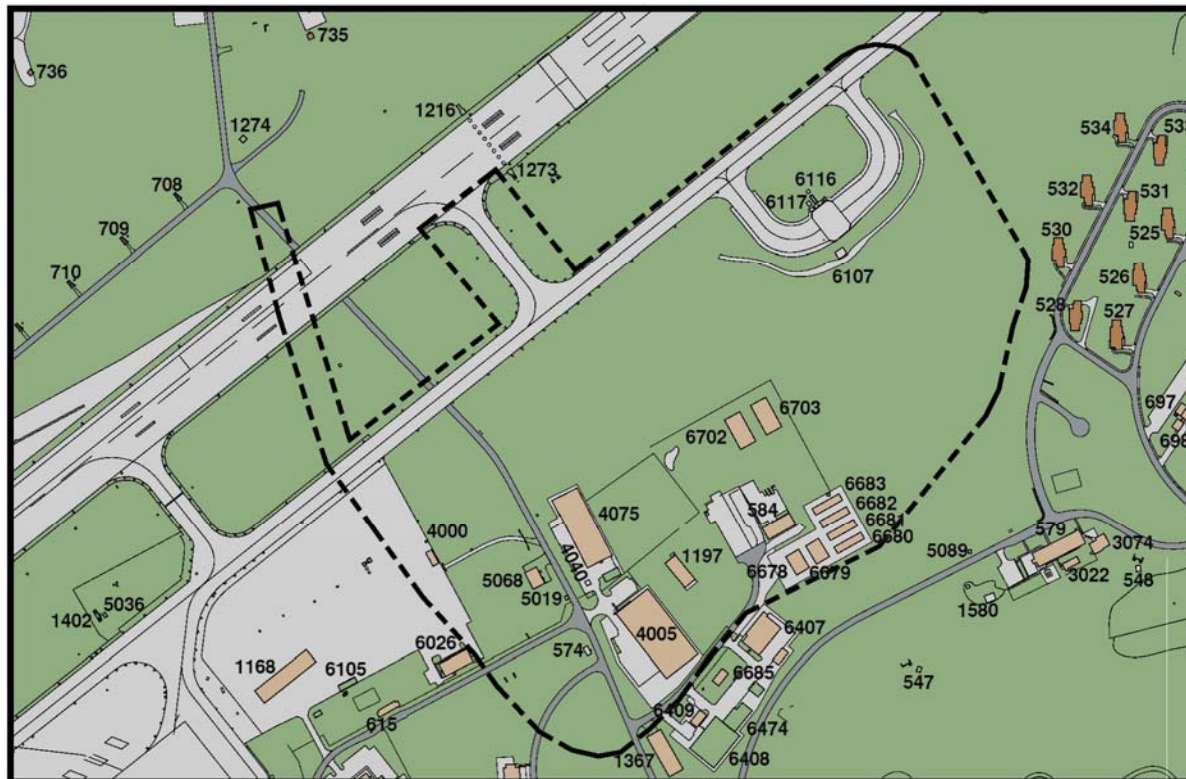


Figure 3-3: Partial site plan of MCB Hawaii Kaneohe Bay illustrating site C. The facilities within the dashed boundary are proposed for demolition. A MV-22 Aircraft Maintenance Hanger, an aircraft parking apron, a MCAS OPS complex, a new sewer pump station, wash rack, and a POV parking lot. Also, the road will be realigned and a new sentry station will be added.

HISTORIC STRUCTURES AFFECTED

Facilities 250 and 271 are eligible for inclusion on the National Register of Historic Places under Criterion A for their association with the vigorous construction of Naval Air Station Kaneohe Bay which resulted after the Japanese attack of December 7, 1941. These facilities are part of a grouping of warehouses constructed during the war. They were surveyed and found eligible as part of the *Marine Corps Base Hawaii, Kaneohe Bay, Historic Building Inventory* dated June 2005.

The project plans are to reconfigure the interior, non-permanent fixtures of both facilities and add a restroom to facility 271.



Figure 3-4: Photo dated August 26, 1945 showing Facilities 250, 269, 270 & 271 shortly after they were built. Note the additions along the long sides of Facilities 271 and 269. In the original photo it is not clear if these are already enclosed additions or just roofed over open air areas. Source: -- National Archives.



Figure 3-5: Facilities 250, 269, 270, & 271. Photo taken in 1999.

FACILITY 250 – WAREHOUSE

Facility 250 constructed in late 1942 or early 1943 as part of the supply system for the aviation operations of the Naval Air Station. The building is a unique design for industrial buildings of the period, an International Style building designed by the noted architect Albert Kahn, with features that reflect the scarcity of building materials during World War II.



Figure 3-6: Facility 250, note the band of multi-lite, steel frame windows circling the building and the wide overhang of the roof at the loading area on the right. Photo taken in 2003.

The warehouse is a single story building with a low slope gable roof and a roof monitor. The exterior walls of the building consist of a concrete wall about 3'-6" high with a continuous band of fifteen-light metal-frame windows above it. The north and south sides of the building have corrugated metal siding which fills the gables above the level of the windows. Some window lights on the west and south sides are opaque, either replaced with solid panels or painted over. All four sides of the roof monitor have a continuous band of metal-frame windows with pivot sections. The eaves are open, and there are square metal gutters with metal downspouts.

Although the Secretary of the Navy emphasized the construction of temporary structures, Warehouse 250 was built as a permanent building (Bureau of Yards and Docks 1945, 1035), which demonstrates the importance of the facility to base operations. The use of wood, steel, and concrete in its construction and several of its distinctive design features were attempts to balance the need to conserve vital war materials with the requirements of the Naval Air Station for a serviceable warehouse.

FACILITY 271 – WAREHOUSE

Facility 271 was built in 1944 as 160' x 60' temporary storehouse. It was constructed of metal siding over a wood frame with corrugated metal roofing and concrete footing foundations with concrete slab on grade floors. Many of the WW II buildings built at the base were permanent buildings authorized, designed, and constructed before the Japanese attack of December 7, 1941 made the utilization of cheaper, temporary construction imperative. This warehouse, however, was planned and built after the attack as a temporary building that was easy to erect and conserved vital war materials and funds. Facility 271 is grouped with two other warehouses, 269 and 270, around an earlier (1942) permanent-constructed warehouse, Facility 250, which is also part of this project.



Figure 3-7: Facility 271. Photo taken in April 2009.

After the war, the military realized that many of the wartime-constructed temporary buildings still had plenty of life left in them, and they were maintained and continued to be utilized. Their designations changed to semi-permanent or permanent to reflect this. This was the case with Facility 271.

Facility 271 had a 35' x 160' addition added on its north side in 1945. By 1966 it had been re-classified as a permanent mx-aircraft parts warehouse. Currently the building appears to have a bituminous mineral surface over a wood sheathed roof. A photo taken on August 26, 1945 from the top of Hawaii Loa Hill shows the roofs over this addition in place, but it is not clear if it was enclosed at this date or was merely an open-air roofed area next to the building. Until at least 2000 this buildings retained siding with the historic corrugation pattern and large-scale sliding wood doors; however, it no longer had windows. Sometime between 2000 and 2009 the siding was replaced with corrugated siding with a more contemporary pattern.

FACILITY 584 – QUONSET HUT

Facility 584 was constructed as a 40 foot by 100 foot Quonset hut in 1943. Typically Quonset huts are eligible under Criterion C for their distinctive form and construction. The setting of this facility in 1943 according to base maps was one of relative isolation unlike the majority of the Quonset huts on the base which were in groups. Today the runway extends much farther running near the area of facility 584 and several other storage buildings have been built in the general vicinity of the Quonset hut, altering the original setting. The characteristic texture of the sinewave siding Quonsets had during WWII has also changed. The current siding is box ribbed siding which is also attached differently than the original siding. Thus, the setting, design, materials, workmanship, feeling, and association have all been compromised to some degree; therefore, this building has been surveyed as not eligible for the National Register of Historic Places.

A HABS report (HABS No. HI-311-F) written and submitted in 2006 gives information regarding the history of Quonset huts at MCB Hawaii, Kaneohe Bay during and immediately following WWII. The report also surveyed the remaining Quonset huts and determines that facility 620 is the best example on MCB Hawaii of a WWII Quonset hut. Facility 620 is in its original location and the setting remains fairly similar to what it was during WWII. Facility 620 has also had the siding replaced except the replacement siding is a more similar corrugation pattern.

The project plans are to demolish facility 584.



Figure 3-8: Photograph of the facility 584.

ADDITIONAL STRUCTURES AFFECTED

This project plans to demolish facilities 1197, 4000, 4005, 4040, 4075, 5019, 5037, 5038, 5039, 5040, 5049, 5050, 5053, 5054, 5055, 5056, 5064, 5065, 5068, 6657, 6678, 6679, 6680, 6681, 6682, 6683, 6702, and 6703. These facilities are less than 50 years old with the majority of them constructed from 1980 to 2000.

Facilities 5037, 5038, 5039, 5040, 5049, 5050, 5053, 5054, 5055, 5056, 5064, and 5065 are located north of the current head quarters building. Facilities 5037, 5038, 5039, and 5040 are van pads which are marked areas of paving with no permanent vertical structures. The other facilities were all constructed in 1988 and make up the support structures for the van pads (facilities 5037 through 5040).

Facilities 6678, 6679, 6680, 6681, 6682, and 6683 are a group of storage buildings adjacent to the runway, and facility 6657 is a standalone structure also adjacent to the runway. These facilities do not appear on the 1991 base map, meaning they were likely not in the current location during the Cold War; however, some of them may have been moved to this location because the base construction dates are before 1991.

Facilities 1197, 4000, 4005, 4040, 4075, 5019, and 5068 are on the 1991 base map; however, during the Cold War study of the base, they were not found to have contributed to historic events or to be directly associated with Cold War missions. The facilities are not of distinctive architectural types.

A photo taken from Kansas Tower of the group of facilities and photos of some individual facilities are provided.



Figure 3-9: Photograph taken from Kansas Tower looking toward the runway. The cluster of storage facilities is visible at the far right. Facility 250 is visible at the far left. Photo taken in 2006 by Franzen Photography.



Figure 3-10: Facility 5068 is a baloncarbon reclamation facility constructed in 1991. Photo taken in August 2009.



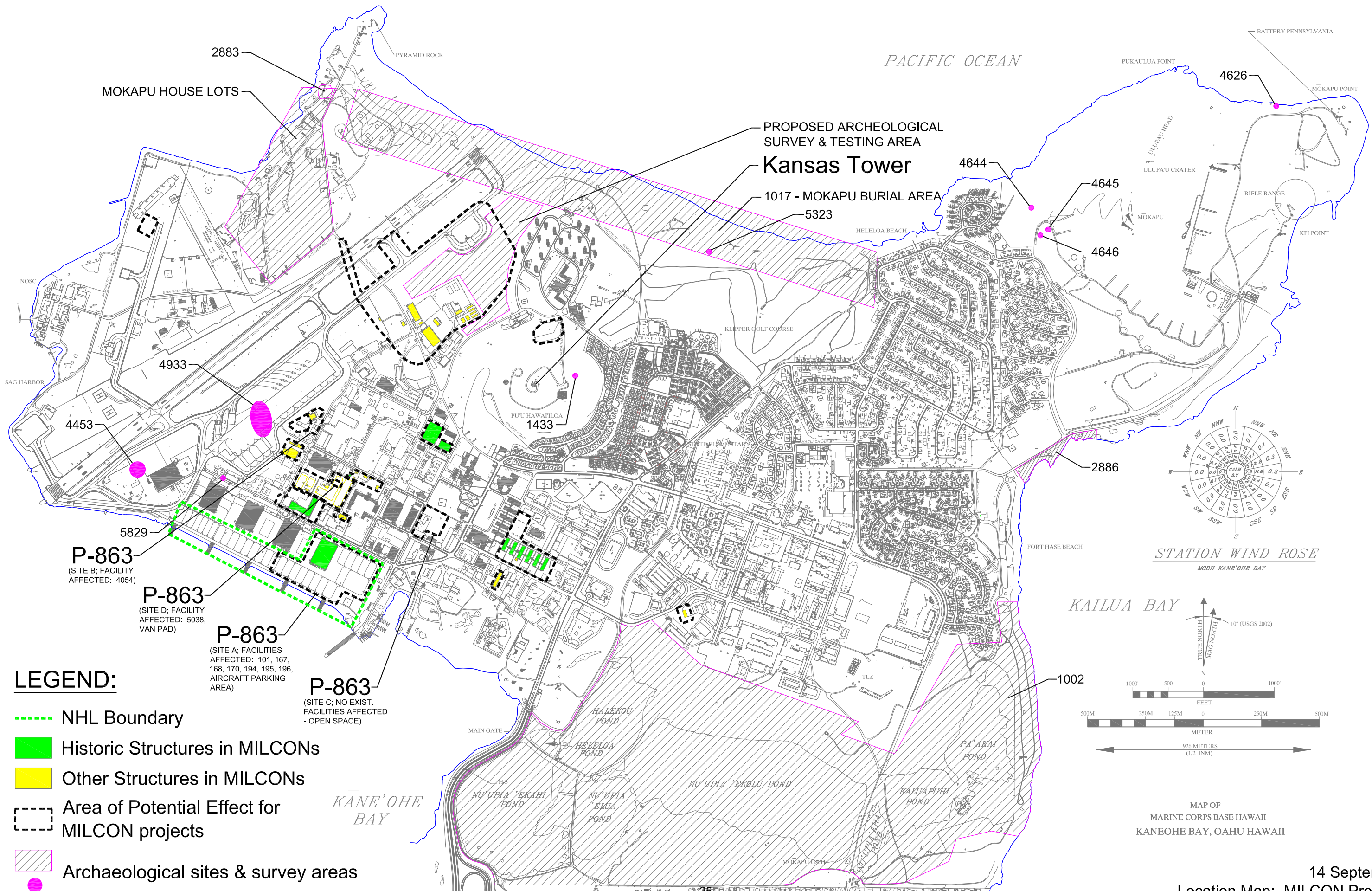
Figure 3-11: Facility 4005 is a storage facility constructed in 1987. Photo taken in July 2009.

HAWAII BASING OF MV-22 AND H-1 AIRCRAFT

IDENTIFICATION OF HISTORIC STRUCTURES

P-863 HMLA HANGAR RENOVATION, APRON, & AID STATION

P-863 HMLA INFRASTRUCTURE UPGRADES



LEGEND:

- - - NHL Boundary
- Historic Structures in MILCONs
- Other Structures in MILCONs
- Area of Potential Effect for MILCON projects
- Archaeological sites & survey areas

P-863 HMLA INFRASTRUCTURE UPGRADES

PROJECT IDENTIFICATION

This project is to renovate existing aircraft Hangar 1 and associated apron to adequately configure it for the HMLA squadron. Renovation includes existing crew and equipment space, existing squadron administration space, and hangar bay space. The project also includes construction of an interim Aid Station that will be housed in modular units and upgrading an existing van pad.

This project affects four areas of the base. For organizational purposes they are divided into Sites A, B, C, and D as indicated in the following figures.

LOCATION PLANS



Figure 4-1: Site A. Partial site plan of MCB Hawaii Kaneohe Bay. The heavy dashed line indicates the project area.

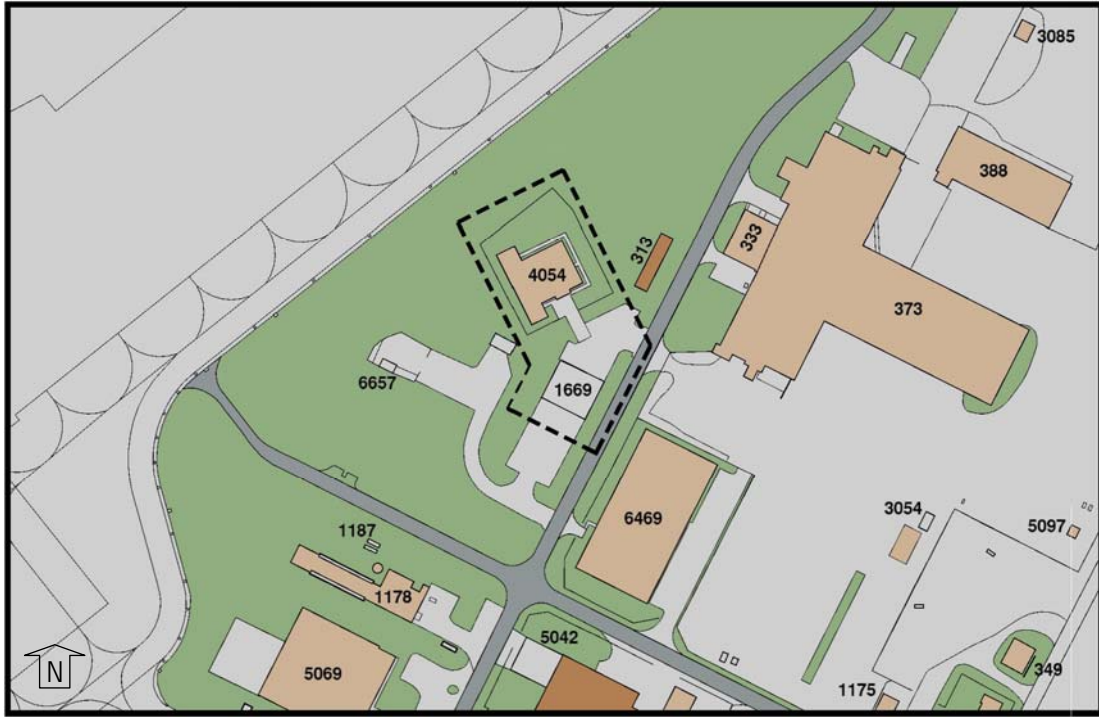


Figure 4-2: Site B. Partial site plan of MCB Hawaii Kaneohe Bay. The heavy dashed line indicates the project area.



Figure 4-3: Site C. Partial site plan of MCB Hawaii Kaneohe Bay. The heavy dashed line indicates the project area.

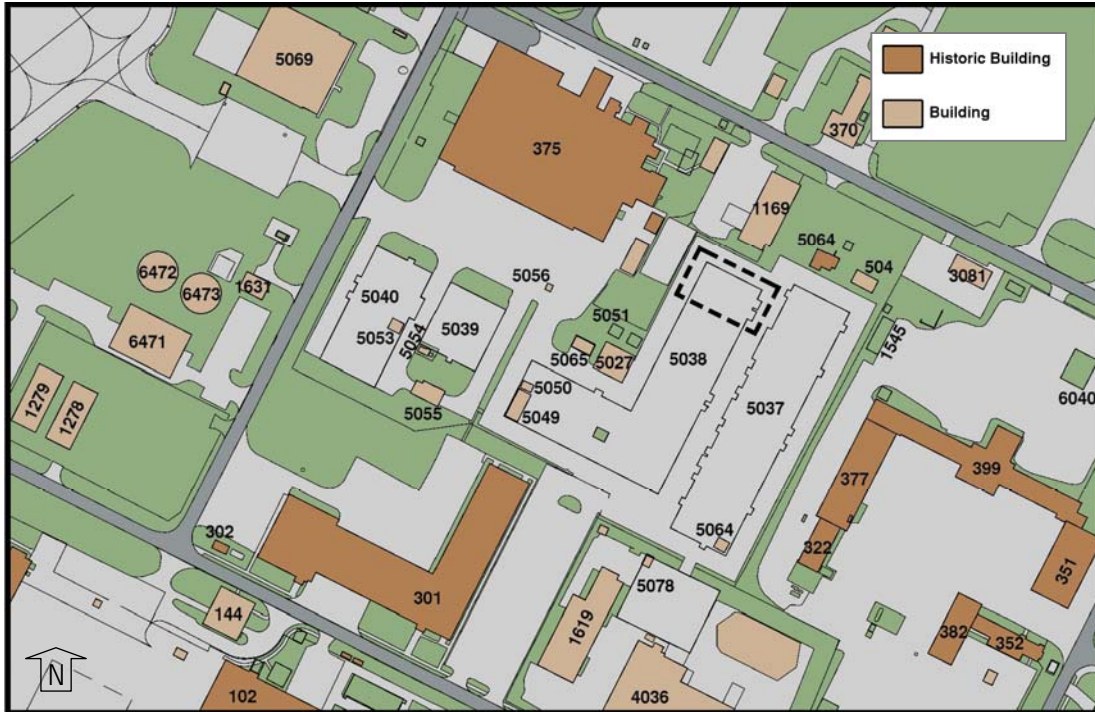


Figure 4-4: Site D. Partial site plan of MCB Hawaii Kaneohe Bay. The heavy dashed line indicates the project area.

HISTORIC STRUCTURES AFFECTED

The existing paved area which makes up the parking apron near Hangar 1 is larger than it was during the WWII era and portions were repaved during the 1990s. A survey of the paved area was conducted in February 2011 to identify any existing attack damage. MCB Hawaii is in the process of proposing options to avoid changes to the areas of attack damage. A report documenting the findings of the survey is at the end of this section. The seaplane ramps which are part of the National Landmark will not be affected by this project.

FACILITY 101 – HANGAR

By the time of the Japanese attack in 1941, Hangar 1 (Facility 101) was completed. During the attack Hangar 1, the surrounding apron, and seaplane ramps were heavily hit by Japanese fire. In 1942 the rebuilding of Hangar 1 was completed. On May 28, 1987, Hangar 1, the five seaplane ramps (Facilities 1-5), the seaplane parking area to the east of Hangar 1, and the seaplane parking area between the hangars and Kaneohe Bay were designated a National Historic Landmark.



Figure 4-5: Hangar 1. Photo taken May 2004.

The hangar is a large, two-story, rectangular building with a tall rectangular form at each corner. During the war a steel, shed roof addition was added to each end of the building between the tall, rectangular corner elements. A small shed roof structure was also added to the road-side of Hangar 1. Originally the siding was cement asbestos, some of which still exists; however, much of it has been replaced with steel siding with a similar corrugation pattern. Originally the building had two roof monitors to allow light into the large hangar spaces; however, these have been replaced by skylights. Historically there was a continuous band of steel windows around the facility; however, many of these, though extant on the interior, have been covered with metal siding on the exterior or the glass has been painted. A large concrete masonry office structure has been built in the open center of the hangar.



Figure 4-6: Aerial view of Kaneohe NAS dated 12/9/41, showing the newly constructed hangars and seaplane ramps two days after the attack. (Source: National Archives 1941)

This project plans to renovate Hangar 1 in accordance with the Secretary of the Interiors Standards for Rehabilitation. The primary work proposed will be on the interior of the facility including the addition of passenger elevators. A concrete topping will be installed over the existing concrete floor to provide the required slope from the center of the hangar to the hangar doors. A trench drain will be installed throughout the hangar floor. The proposed aircraft apron upgrade includes resurfacing, seal coating, and striping of the existing asphalt taxiways and parking apron pavement and the installation of large concrete hardstands at aircraft parking locations.

FACILITIES 167, 168, 170, 194, 195, & 196 AIRCRAFT SPARES STORAGE BUILDINGS

These facilities are eligible for inclusion on the National Register of Historic Places under Criterion A for their association with the initial development of Naval Air Station Kaneohe Bay in anticipation of U.S. involvement in WWII. These facilities are part of a group of twenty-one buildings constructed around the hangars as support storage facilities. All the facilities are small, concrete structures with flat roofs, small overhangs and few doors and windows. The facilities are separate structures from the hangar; however, they are located within a few feet of the hangar. They were surveyed and found eligible as part of the *Marine Corps Base Hawaii, Kaneohe Bay, Historic Building Inventory* dated June 2005.

This project plans to fill the space between each of these buildings and the hangar. The Anti-Terrorism Force Protection Standards do not allow for small spaces between buildings; therefore, rather than demolish the small buildings, the area will be filled. The filled areas will be slightly recessed from the current planes of the buildings.



Figure 4-7: Photos above all showing the adjacency to Hangar 1. Top left: Facility 170. Top right: Facility 167. Middle left: Facility 168. Middle right: Facility 194. Lower left: Facility 195. Lower right: 196. Photos taken in 2004.

ADDITIONAL STRUCTURES AFFECTED

This project plans to renovate and construct an addition to facility 4054, which was constructed in 1986. This facility is not of a distinctive type nor has been found to be directly associated with significant Cold War history.

Facility 5038, a van pad constructed in 1988, will be upgraded. The van pad is a concrete pad with utility service outlets and has no permanent vertical structure.

This project also plans to construct a new aid station in what is currently an open area.



Figure 4-8: Facility 4054. Photo taken in January 2009.



Figure 4-9: Facility 5038. Photo taken in 2009.



Satellite imagery provided by USMC or USGS.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 15 30 60
 SCALE IN METERS
 NORTH
 0 60 120 240
 SCALE IN FEET

KB - 1
MCBH KANEOHE BAY
GP 216



Satellite imagery provided by USMC or USGS.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 12.5 25 50
 SCALE IN METERS
 NORTH
 0 50 100 200
 SCALE IN FEET

KB - 2
MCBH KANEOHE BAY
RIFLE RANGE



Satellite imagery provided by USMC or USGS.



LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed line] Evaluation Area

0 20 40 80
 SCALE IN METERS
 0 80 160 320
 SCALE IN FEET
 [North arrow icon] NORTH

KB - 3
MCBH KANEOHE BAY
BOONDOCKER



Satellite imagery provided by USMC or USGS.



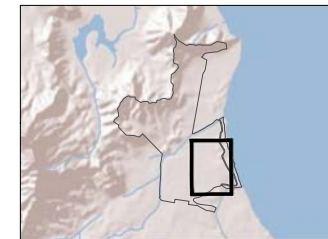
LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed line] Evaluation Area

0 15 30 60
 SCALE IN METERS
 0 70 140 280
 SCALE IN FEET
 [North arrow icon] NORTH

KB - 4
MCBH KANEOHE BAY
EAGLE



Satellite imagery provided by USMC or USGS.



LEGEND
 [Red dashed line] Zone Perimeter
 [Yellow dashed line] Evaluation Area

0 30 60 120
 SCALE IN METERS
 [North arrow] NORTH

0 125 250 500
 SCALE IN FEET

**MCTAB - 1
 MARINE CORPS TRAINING AREA BELLOWS
 HAWK**



Satellite imagery provided by USMC or USGS.



LEGEND
 [Red dashed line] Zone Perimeter
 [Yellow dashed line] Evaluation Area

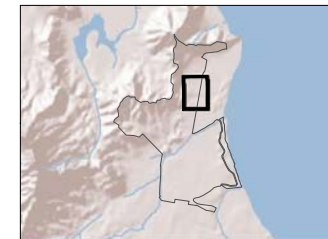
0 15 30 60
 SCALE IN METERS
 [North arrow] NORTH

0 60 120 240
 SCALE IN FEET

**MCTAB - 2
 MARINE CORPS TRAINING AREA BELLOWS
 NONI**



Satellite imagery provided by USMC.



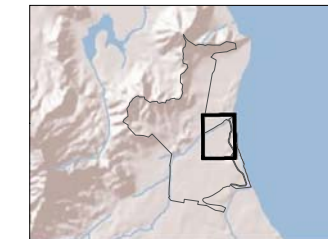
LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 20 40 80
 SCALE IN METERS
 0 62.5 125 250
 SCALE IN FEET
 NORTH

MCTAB - 3
MARINE CORPS TRAINING AREA BELLOWS
GULL



Satellite imagery provided by USMC.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 25 50 100
 SCALE IN METERS
 0 87.5 175 350
 SCALE IN FEET
 NORTH

MCTAB - 4
MARINE CORPS TRAINING AREA BELLOWS
OWL



Satellite imagery provided by USMC.



LEGEND
 [Red outline] Zone Perimeter
 [Dashed yellow line] Evaluation Area

0 15 30 60
 SCALE IN METERS
 NORTH
 0 55 110 220
 SCALE IN FEET

**MCTAB - 5
 MARINE CORPS TRAINING AREA BELLOWS
 TIGER**



Satellite imagery provided by USMC.



LEGEND
 [Red outline] Zone Perimeter
 [Dashed yellow line] Evaluation Area

0 15 30 60
 SCALE IN METERS
 NORTH
 0 60 120 240
 SCALE IN FEET

**PUULOLO - 1
 PUULOLO TRAINING FACILITY
 BRAVO RANGE**



Satellite imagery provided by USMC.



LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed line] Evaluation Area

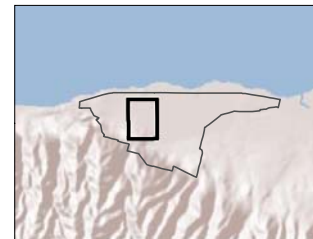
0 15 30 60
 SCALE IN METERS
 0 70 140 280
 SCALE IN FEET



**FORD FIELD - 1
 FORD ISLAND
 FORD HELIPAD**



Satellite imagery provided by USMC.



LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed line] Evaluation Area

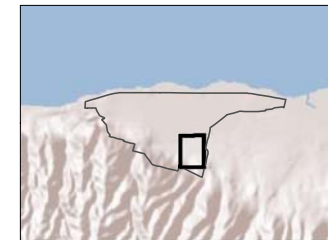
0 20 40 80
 SCALE IN METERS
 0 65 130 260
 SCALE IN FEET



**DMR - 1
 DILLINGHAM MILITARY RESERVATION
 ALBATROSS (APRON)**



Satellite imagery provided by USMC.



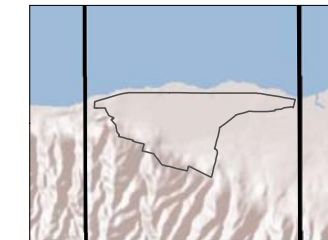
LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 15 30 60
 SCALE IN METERS
 0 50 100 200
 SCALE IN FEET
 NORTH

DMR - 2
DILLINGHAM MILITARY RESERVATION
BLUE JAY (NEW)



Satellite imagery provided by USMC.



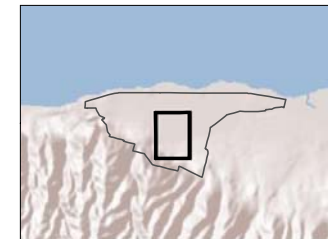
LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 155 310 620
 SCALE IN METERS
 0 455 910 1,820
 SCALE IN FEET
 NORTH

DMR - 3
DILLINGHAM MILITARY RESERVATION
DILLINGHAM AIRFIELD RUNWAY



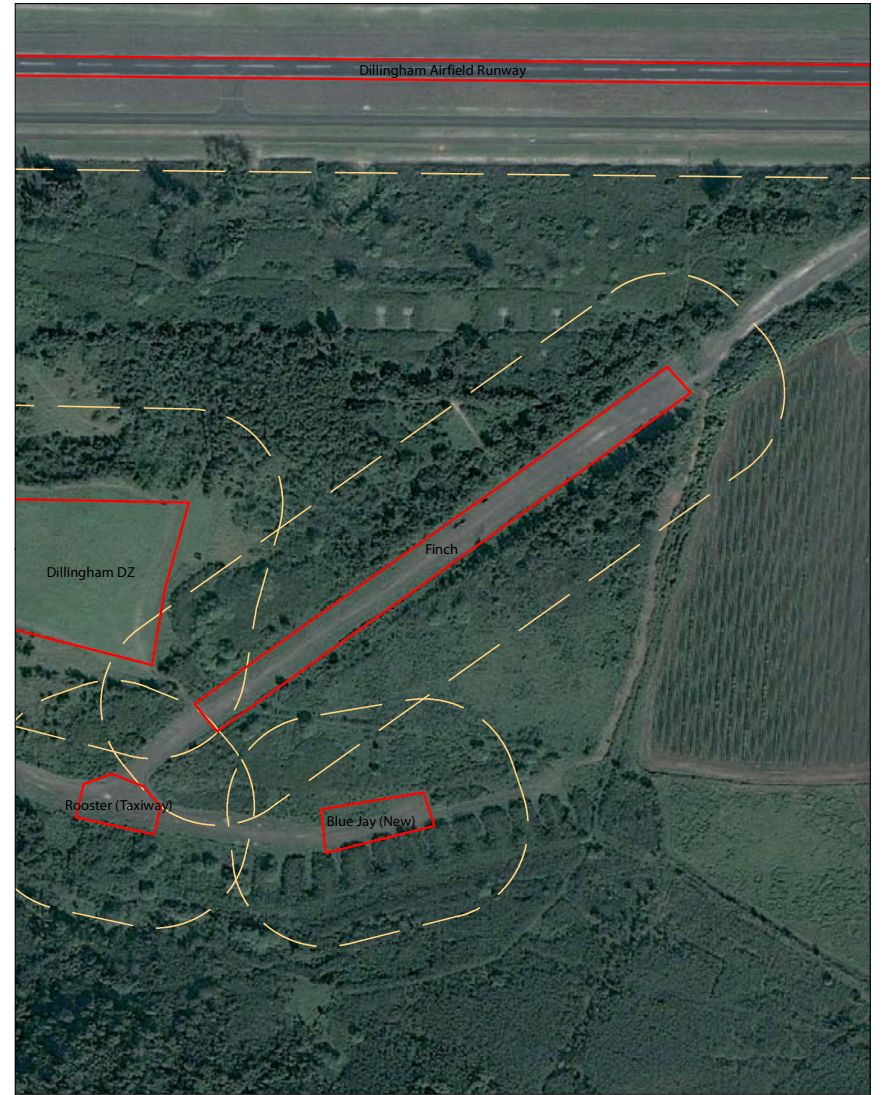
Satellite imagery provided by USMC.



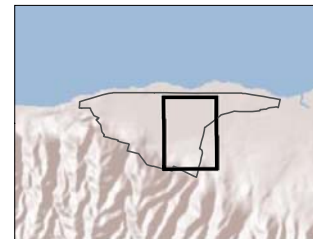
LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 25 50 100
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET
 [North Arrow] NORTH

DMR - 4
DILLINGHAM MILITARY RESERVATION
DILLINGHAM DZ



Satellite imagery provided by USMC.



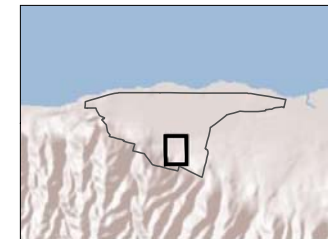
LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 37.5 75 150
 SCALE IN METERS
 0 120 240 480
 SCALE IN FEET
 [North Arrow] NORTH

DMR - 5
DILLINGHAM MILITARY RESERVATION
FINCH



Satellite imagery provided by USMC.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 15 30 60
 SCALE IN METERS
 0 45 90 180
 SCALE IN FEET



**DMR - 6
 DILLINGHAM MILITARY RESERVATION
 ROOSTER (TAXIWAY)**



Satellite imagery provided by USMC or USGS.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 75 150 300
 SCALE IN METERS
 0 285 570 1,140
 SCALE IN FEET



**WAAF - 1
 WHEELER ARMY AIR FIELD
 WAAF RUNWAY**



Satellite imagery provided by USMC.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 20 40 80
 SCALE IN METERS
 0 62.5 125 250
 SCALE IN FEET
 NORTH

**KTA - 1
 KAHUKU TRAINING AREA
 X STRIP**



Satellite imagery provided by USMC.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area



0 15 30 60
 SCALE IN METERS
 0 55 110 220
 SCALE IN FEET
 NORTH


**KTA - 2
 KAHUKU TRAINING AREA
 KAHUKU SPLIT ROCK**



Satellite imagery provided by USMC.



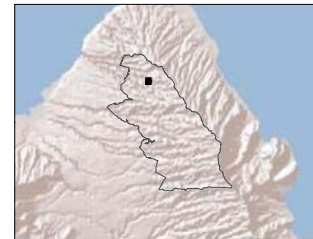
LEGEND
 Zone Perimeter
 Evaluation Area



0 30 60 120
 SCALE IN METERS
 NORTH
 0 100 200 400
 SCALE IN FEET


KTA - 3
KAHUKU TRAINING AREA
KANÈS



Satellite imagery provided by USMC.



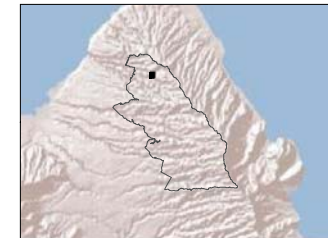
LEGEND
 Zone Perimeter
 Evaluation Area

0 12.5 25 50
 SCALE IN METERS
 NORTH
 0 40 80 160
 SCALE IN FEET

KLOA - 1
KAWAILOA TRAINING AREA
ELEPHANTS FOOT



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area

0 12.5 25 50
 SCALE IN METERS NORTH
 0 35 70 140
 SCALE IN FEET

KLOA - 2
KAWAIILOA TRAINING AREA
NIXON



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area



0 15 30 60
 SCALE IN METERS NORTH
 0 45 90 180
 SCALE IN FEET


KLOA - 3
KAWAIILOA TRAINING AREA
RED



Satellite imagery provided by USMC.



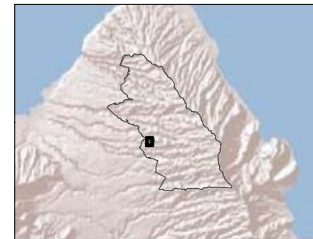
LEGEND
 Zone Perimeter
 Evaluation Area



0 20 40 80
 SCALE IN METERS
 NORTH
 0 70 140 280
 SCALE IN FEET


**KLOA - 4
 KAWAIILOA TRAINING AREA
 BLACK**



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area



0 20 40 80
 SCALE IN METERS
 NORTH
 0 75 150 300
 SCALE IN FEET


**KLOA - 5
 KAWAIILOA TRAINING AREA
 NON STOP**



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area



0 50 100 200
 SCALE IN METERS  NORTH
 0 150 300 600
 SCALE IN FEET


**KLOA - 6
 KAWAIILOA TRAINING AREA
 PUU KAPU**



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area

0 15 30 60
 SCALE IN METERS  NORTH
 0 50 100 200
 SCALE IN FEET

**SBER - 1
 SCHOFIELD BARRACKS EAST RANGE
 ITALY**



Satellite imagery provided by USMC.



LEGEND
 [Red solid line] Zone Perimeter
 [Yellow dashed line] Evaluation Area

0 25 50 100
 SCALE IN METERS
 0 87.5 175 350
 SCALE IN FEET
 NORTH

SBER - 2
SCHOFIELD BARRACKS EAST RANGE
KU TREE



Satellite imagery provided by USMC.



LEGEND
 [Red solid line] Zone Perimeter
 [Yellow dashed line] Evaluation Area

0 30 60 120
 SCALE IN METERS
 0 100 200 400
 SCALE IN FEET
 NORTH

SBER - 3
SCHOFIELD BARRACKS EAST RANGE
LIGHTNING



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area

0 45 90 180
 SCALE IN METERS NORTH
 0 135 270 540
 SCALE IN FEET

SBER - 4
SCHOFIELD BARRACKS EAST RANGE
LOWER 36



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area


0 15 30 60
 SCALE IN METERS NORTH
 0 60 120 240
 SCALE IN FEET


SBER - 5
SCHOFIELD BARRACKS EAST RANGE
LOWER 72



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area



0 20 40 80
 SCALE IN METERS
 NORTH
 0 75 150 300
 SCALE IN FEET


SBER - 6
SCHOFIELD BARRACKS EAST RANGE
UPPER 36



Satellite imagery provided by USMC.



LEGEND
 Zone Perimeter
 Evaluation Area

0 20 40 80
 SCALE IN METERS
 NORTH
 0 60 120 240
 SCALE IN FEET

SBER - 7
SCHOFIELD BARRACKS EAST RANGE
UPPER 72



Satellite imagery provided by USMC.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 15 30 60
 SCALE IN METERS
 [North Arrow] NORTH
 0 70 140 280
 SCALE IN FEET

SBMP - 1
SCHOFIELD BARRACKS MAIN POST
DRAGON X



Satellite imagery provided by USMC.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

0 12.5 25 50
 SCALE IN METERS
 [North Arrow] NORTH
 0 37.5 75 150
 SCALE IN FEET


CS - 1
MCB CAMP SMITH
CAMP SMITH



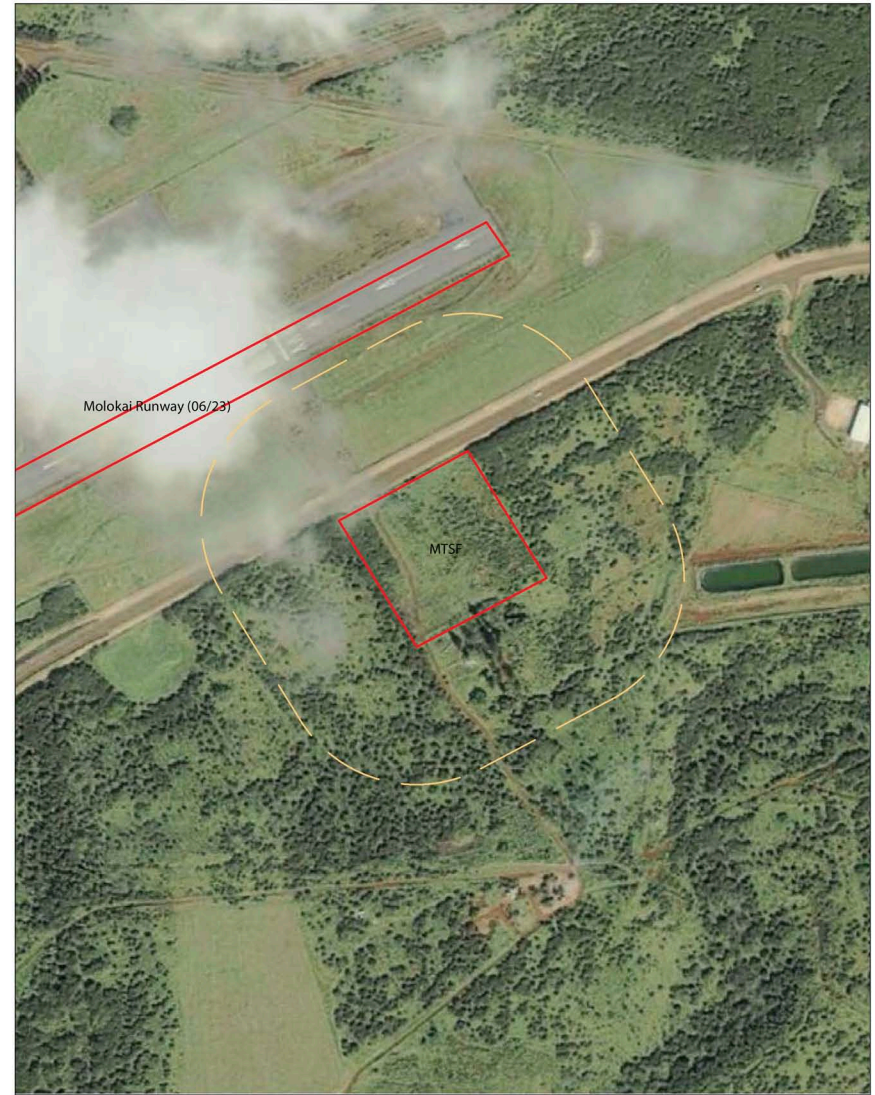
Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter

0 50 100 200
 SCALE IN METERS  NORTH
 0 150 300 600
 SCALE IN FEET


KALAUPAPA - 1
KALAUPAPA AIRPORT
KALAUPAPA RUNWAY



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

0 20 40 80
 SCALE IN METERS  NORTH
 0 75 150 300
 SCALE IN FEET

MTSF - 1
MOLOKAI TRAINING SUPPORT FACILITY



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.

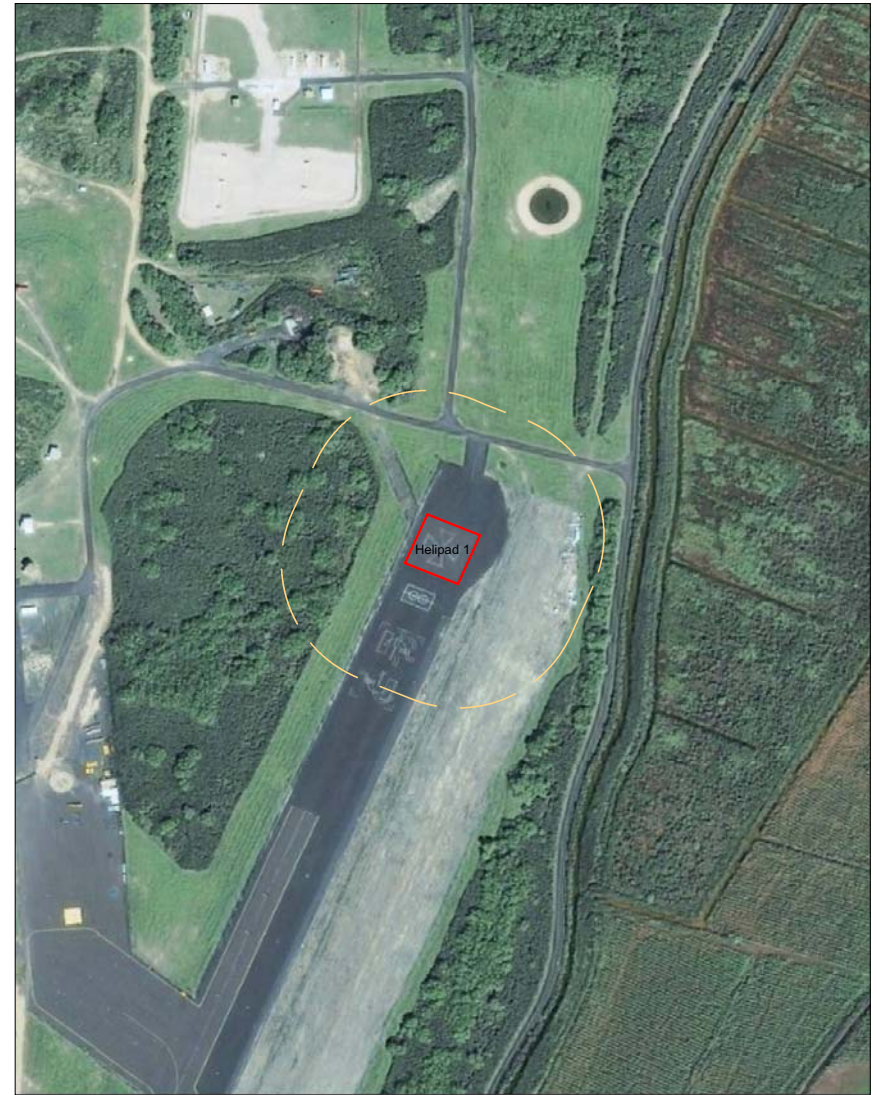


LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Box] Evaluation Area

0 70 140 280
 SCALE IN METERS
 0 245 490 980
 SCALE IN FEET



**PMRF - 1
 PACIFIC MISSILE RANGE FACILITY
 BARKING SANDS RUNWAY**



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Box] Evaluation Area

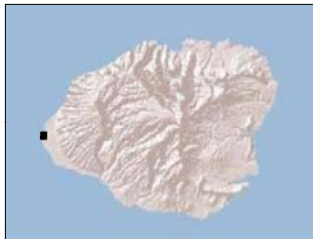
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 SCALE IN METERS
 0 100 200 400
 SCALE IN FEET

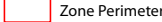
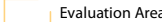



**PMRF - 2
 PACIFIC MISSILE RANGE FACILITY
 HELIPAD 1**



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



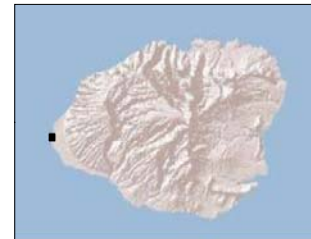
LEGEND
 Zone Perimeter
 Evaluation Area


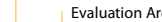
0 25 50 100
 SCALE IN METERS  NORTH
 0 100 200 400
 SCALE IN FEET


**PMRF - 3
 PACIFIC MISSILE RANGE FACILITY
 HELIPAD 2**



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



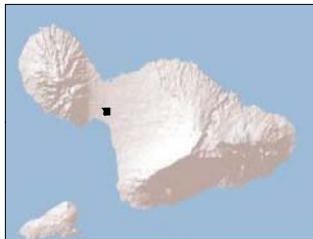
LEGEND
 Zone Perimeter
 Evaluation Area



0 25 50 100
 SCALE IN METERS  NORTH
 0 100 200 400
 SCALE IN FEET


**PMRF - 4
 PACIFIC MISSILE RANGE FACILITY
 HELIPAD 3**



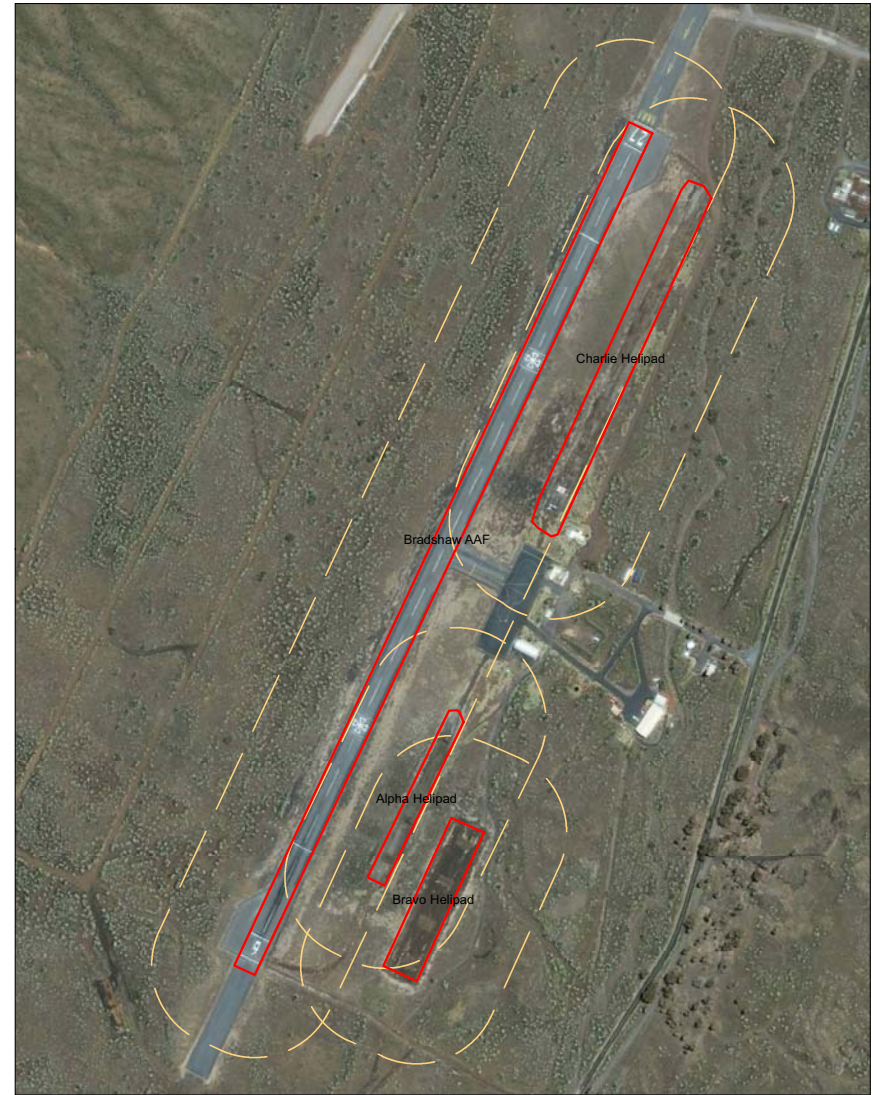
Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



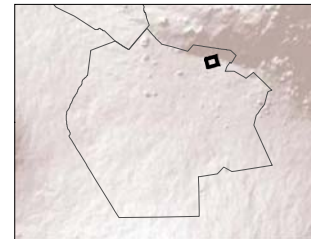
LEGEND
 Zone Perimeter
 Evaluation Area



0 30 60 120
 SCALE IN METERS
 NORTH
 0 125 250 500
 SCALE IN FEET


**HIARNG - 2
 HAWAII ARMY NATIONAL GUARD
 ARMORY AND TRUCK**



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



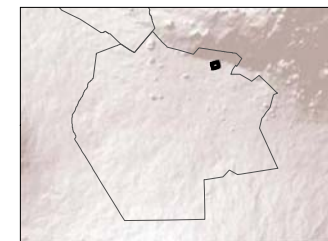
LEGEND
 Zone Perimeter
 Evaluation Area

0 37.5 75 150
 SCALE IN METERS
 NORTH
 0 150 300 600
 SCALE IN FEET

**BAAF - 1
 BRADSHAW ARMY AIRFIELD
 BRADSHAW AAF**



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.

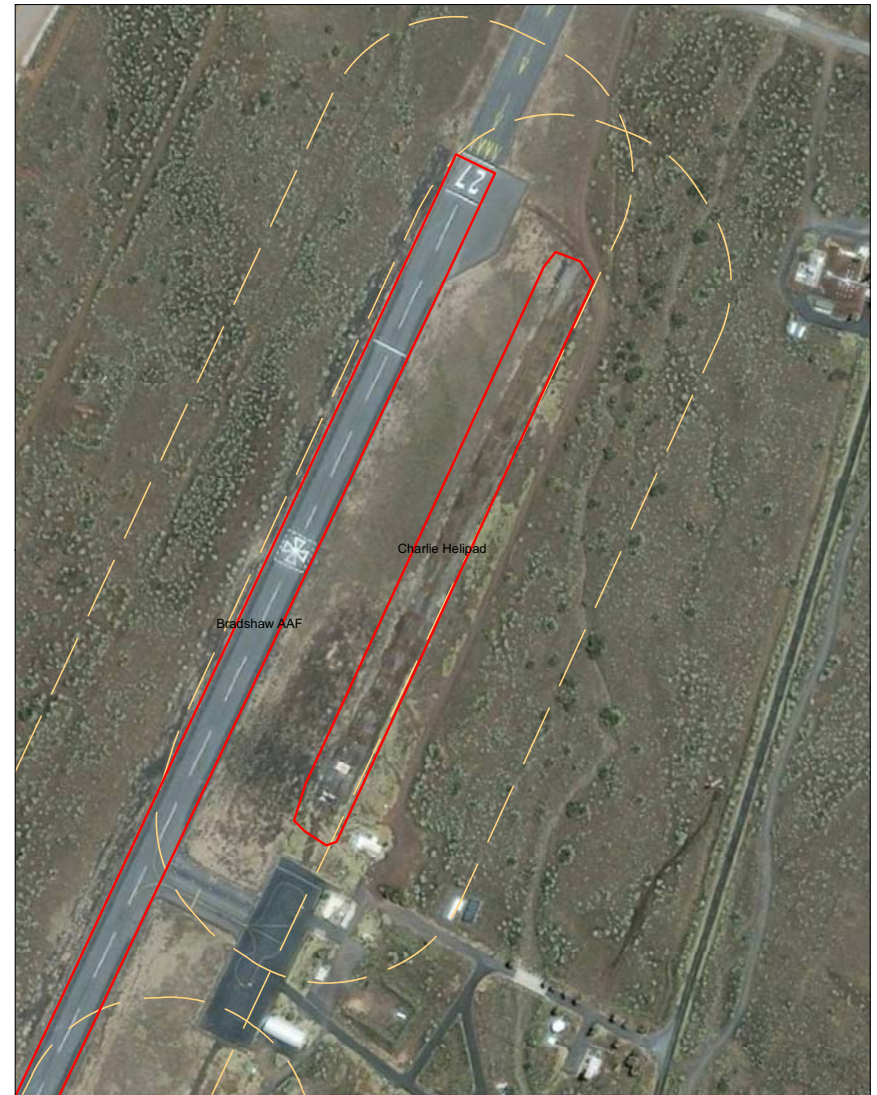


LEGEND
 [Red Outline] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

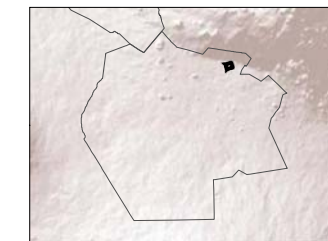
0 20 40 80
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET



BAAF - 2
BRADSHAW ARMY AIRFIELD
ALPHA HELIPAD AND BRAVO HELIPAD



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red Outline] Zone Perimeter
 [Yellow Dashed Line] Evaluation Area

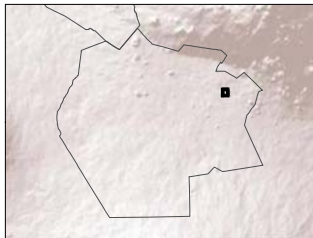
0 20 40 80
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET



BAAF - 3
BRADSHAW ARMY AIRFIELD
CHARLIE HELIPAD



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed outline] Evaluation Area

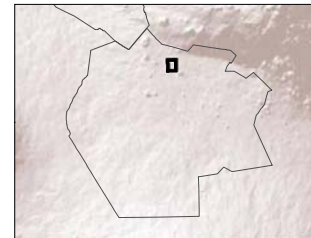
0 20 40 80
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET



PTA - 1
POHAKULOA TRAINING AREA
BRAD



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed outline] Evaluation Area

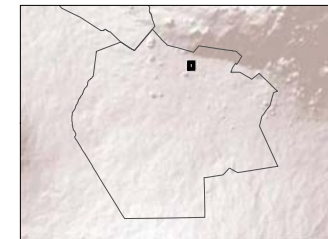
0 37.5 75 150
 SCALE IN METERS
 0 125 250 500
 SCALE IN FEET



PTA - 2
POHAKULOA TRAINING AREA
FISHER DZ



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed line] Evaluation Area

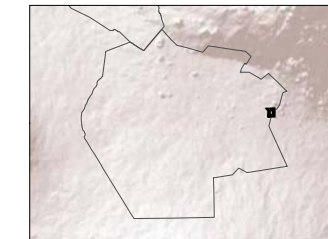
0 20 40 80
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET



PTA - 3
POHAKULOLO TRAINING AREA
MIKILUA DZ



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red outline] Zone Perimeter
 [Yellow dashed line] Evaluation Area

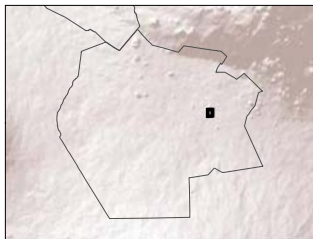
0 20 40 80
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET



PTA - 4
POHAKULOLO TRAINING AREA
ROB



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Circle] Evaluation Area

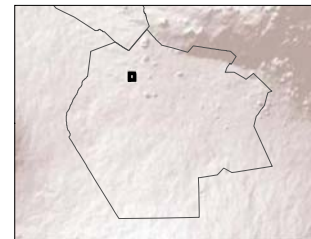
0 20 40 80
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET



PTA - 5
POHAKULOA TRAINING AREA
TANGO



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red Box] Zone Perimeter
 [Yellow Dashed Circle] Evaluation Area

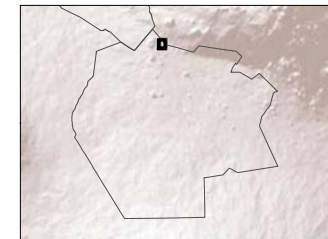
0 20 40 80
 SCALE IN METERS
 0 75 150 300
 SCALE IN FEET





PTA - 6
POHAKULOA TRAINING AREA
XRAY



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

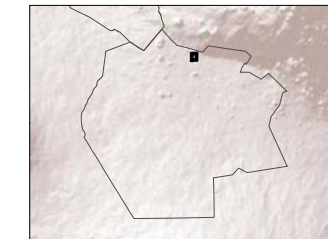
0 30 60 120
 SCALE IN METERS
 0 100 200 400
 SCALE IN FEET





PTA - 7
POHAKULOA TRAINING AREA
YANKEE



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

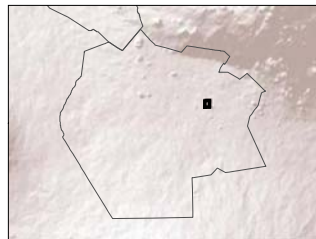
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 SCALE IN FEET



PTA - 8
POHAKULOA TRAINING AREA
ZULU



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.

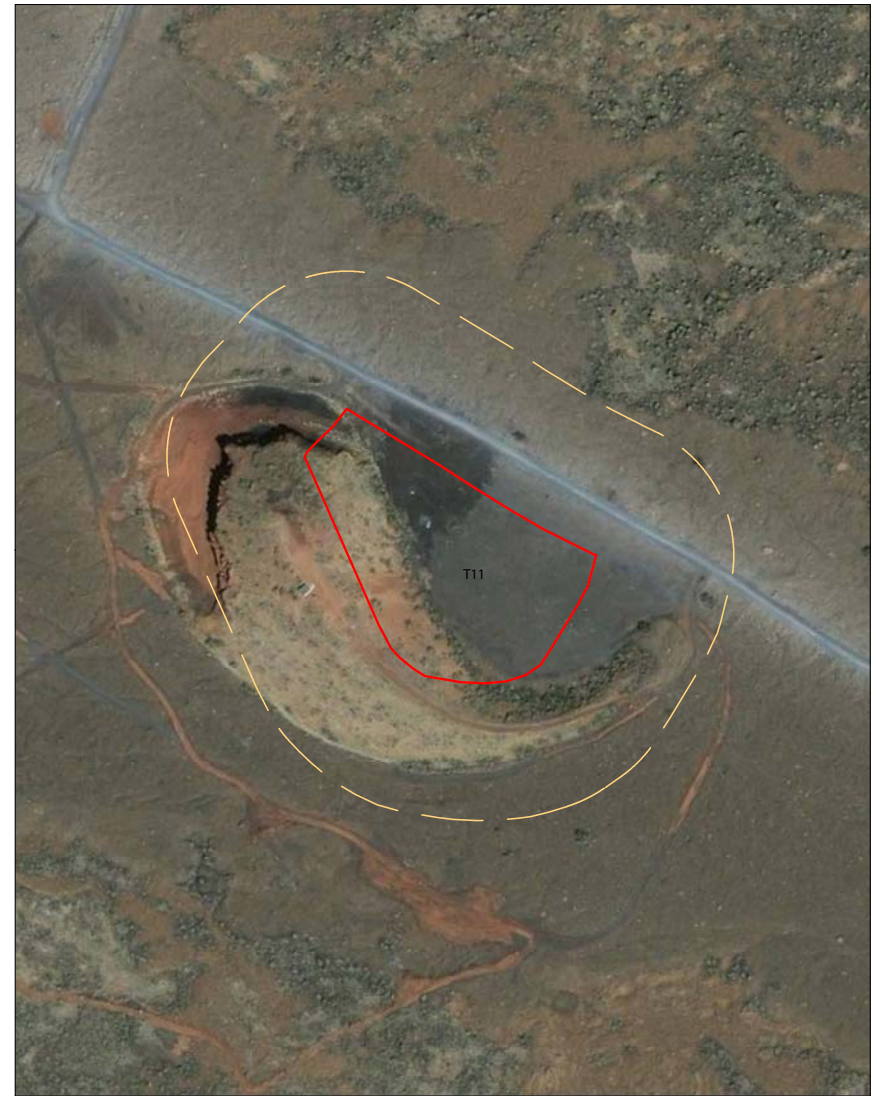


LEGEND
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 [Yellow dashed line] Evaluation Area

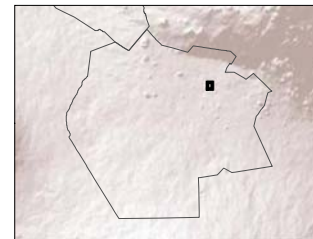
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PTA - 9
POHAKULOA TRAINING AREA
NOBLE



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
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 [Yellow dashed line] Evaluation Area

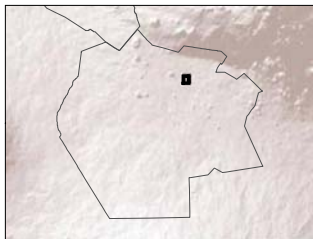
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PTA - 10
POHAKULOA TRAINING AREA
T11



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



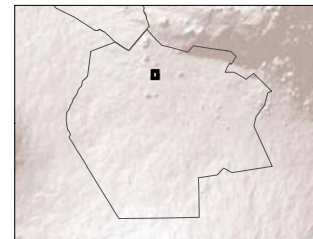
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 NORTH
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 SCALE IN FEET

PTA - 11
POHAKULOA TRAINING AREA
FARP 12A



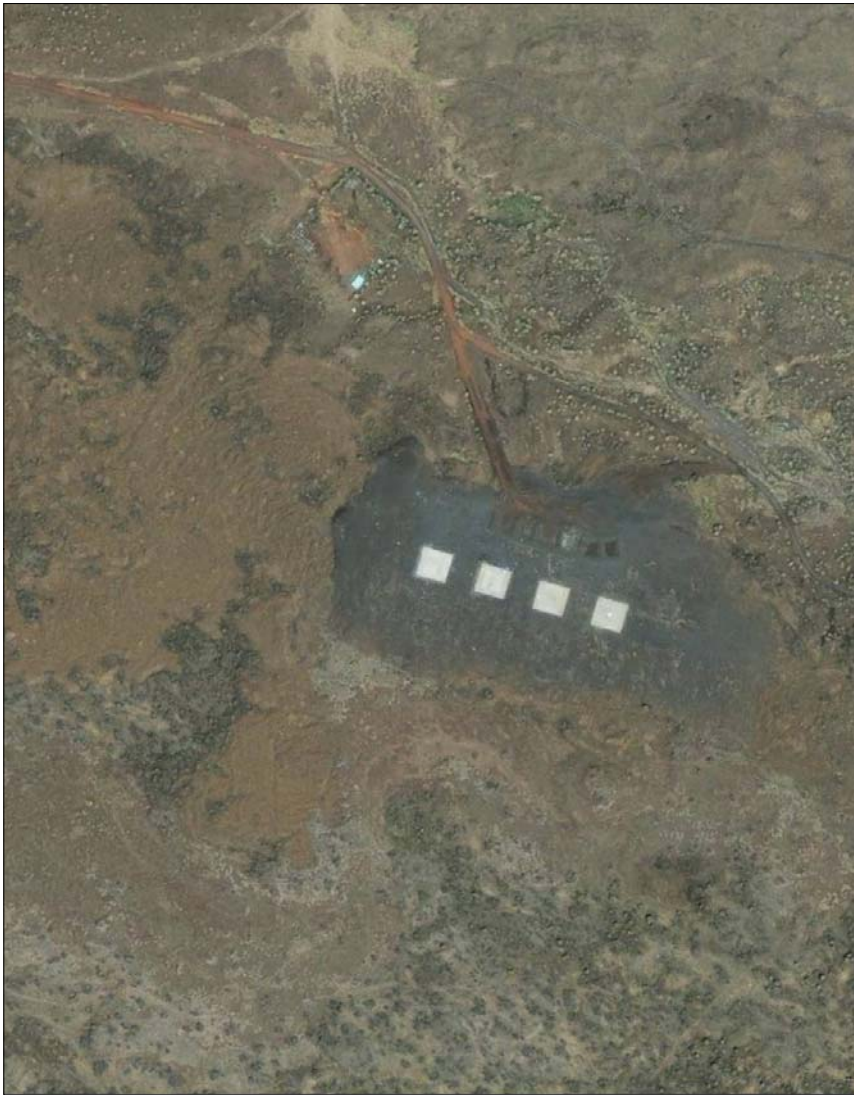
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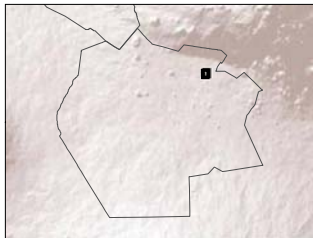
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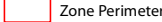
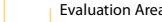
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PTA - 12
POHAKULOA TRAINING AREA
FARP 17



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



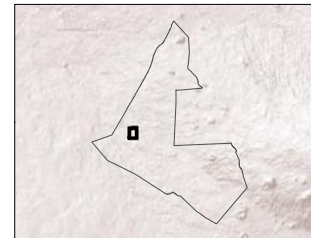
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 Zone Perimeter
 Evaluation Area



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PTA - 13
POHAKULOA TRAINING AREA
FARP 18



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



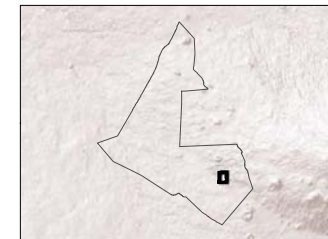
LEGEND
 Zone Perimeter
 Evaluation Area



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 NORTH
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 SCALE IN FEET

PTA KEAMUKU - 1
POHAKULOA TRAINING AREA KEAMUKU PARCEL
BUZZARD



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.

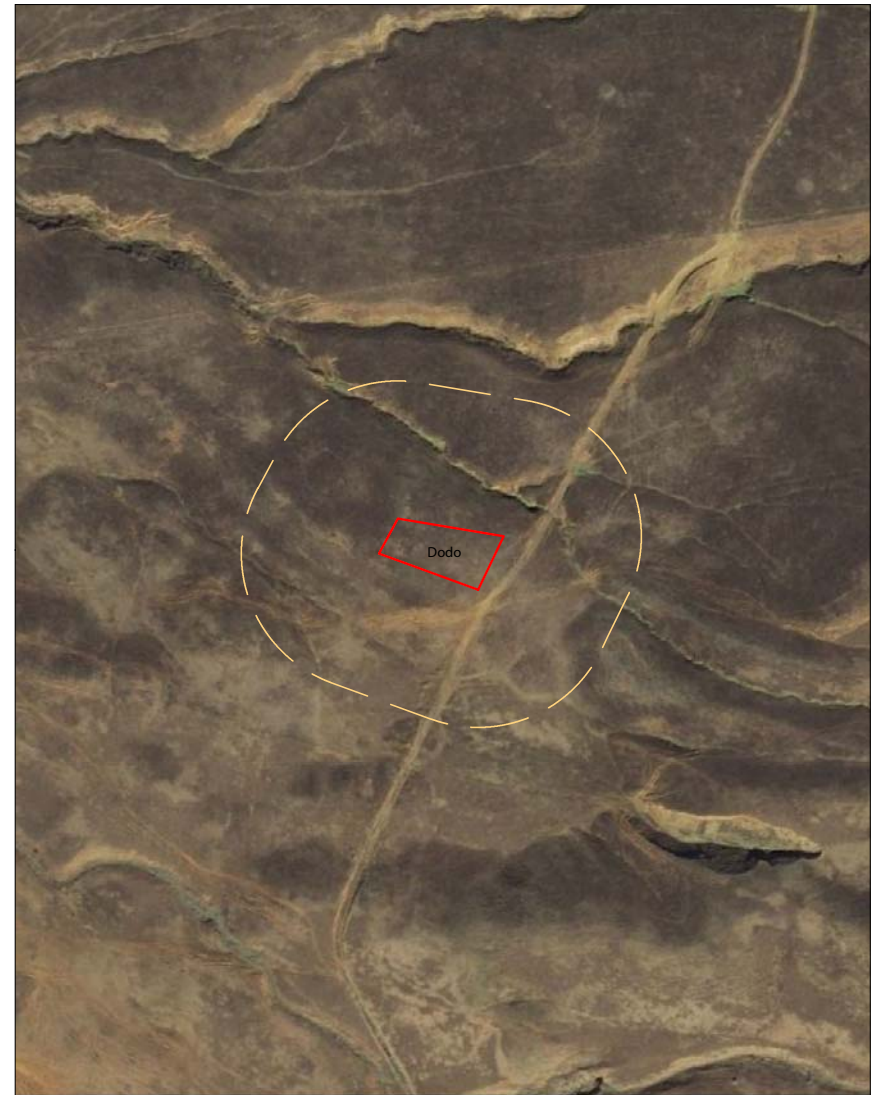


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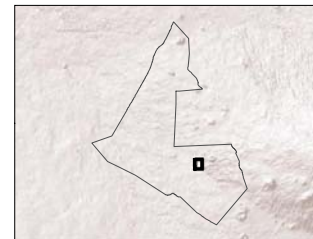
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PTA KEAMUKU - 2
POHAKULOA TRAINING AREA KEAMUKU PARCEL
CHICK



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

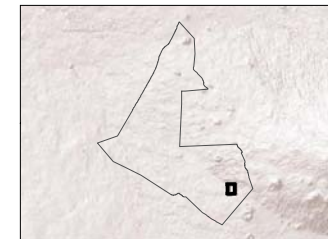
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 SCALE IN FEET





PTA KEAMUKU - 3
POHAKULOA TRAINING AREA KEAMUKU PARCEL
DODO



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

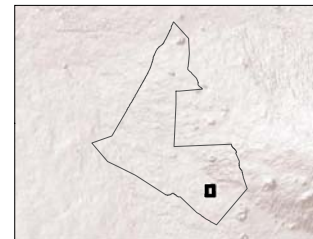
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PTA KEAMUKU - 4
POHAKULOA TRAINING AREA KEAMUKU PARCEL
DOVE



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

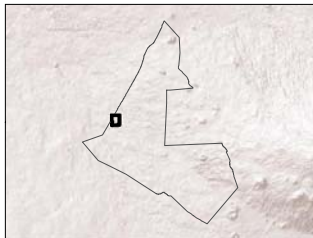
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PTA KEAMUKU - 5
POHAKULOA TRAINING AREA KEAMUKU PARCEL
EMU



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

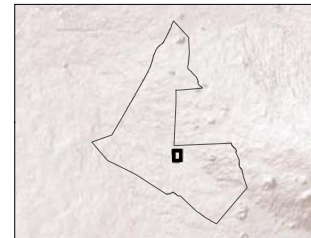
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PTA KEAMUKU - 6
POHAKULOA TRAINING AREA KEAMUKU PARCEL
FINCH



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

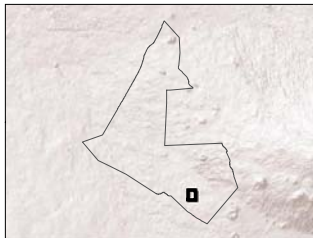
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PTA KEAMUKU - 7
POHAKULOA TRAINING AREA KEAMUKU PARCEL
GAMECOCK



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.

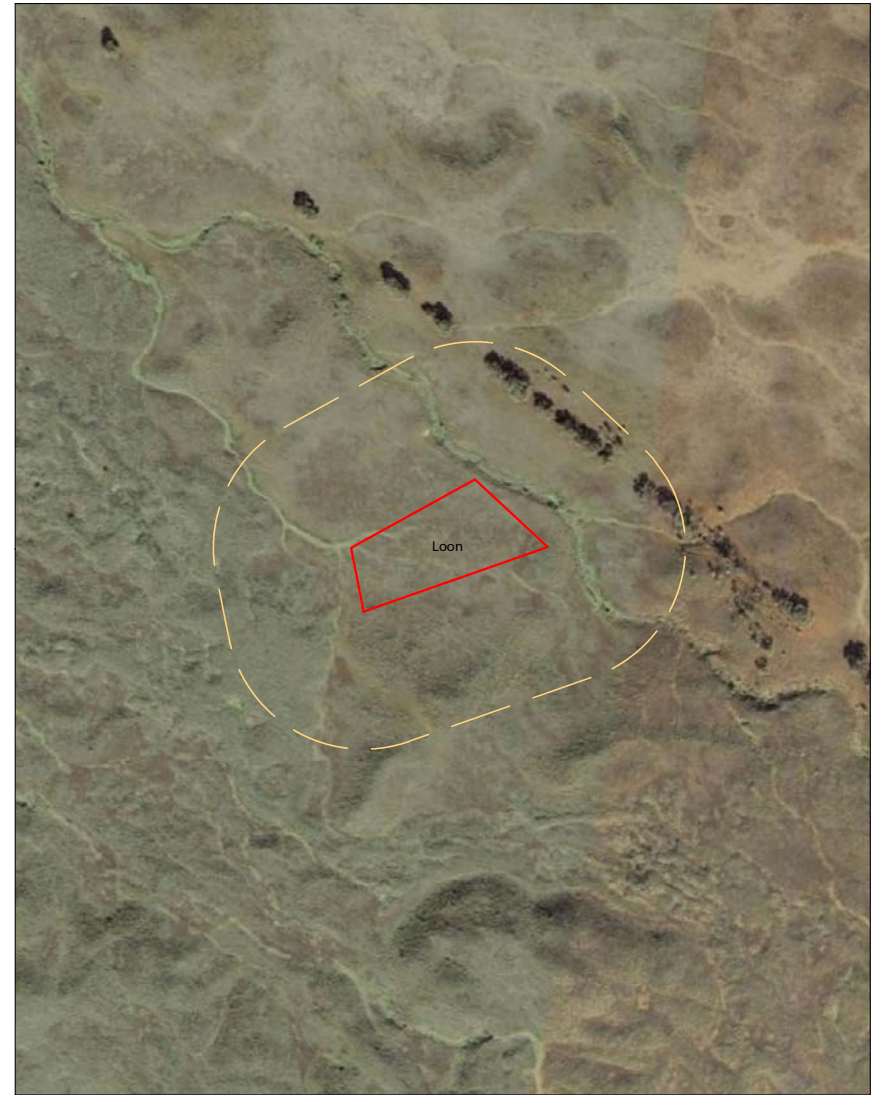


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 Evaluation Area

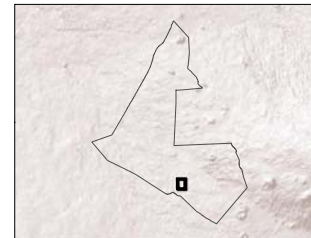
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PTA KEAMUKU - 8
POHAKULOA TRAINING AREA KEAMUKU PARCEL
KIWI



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

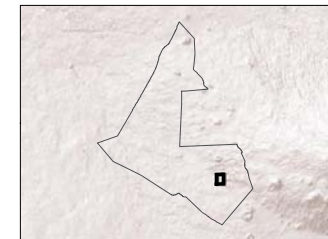
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PTA KEAMUKU - 9
POHAKULOA TRAINING AREA KEAMUKU PARCEL
LOON



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

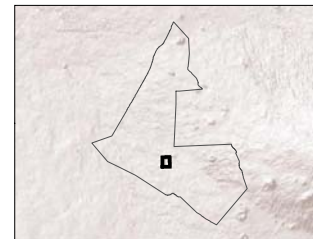
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PTA KEAMUKU - 10
POHAKULOA TRAINING AREA KEAMUKU PARCEL
PARROT OPTION



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.

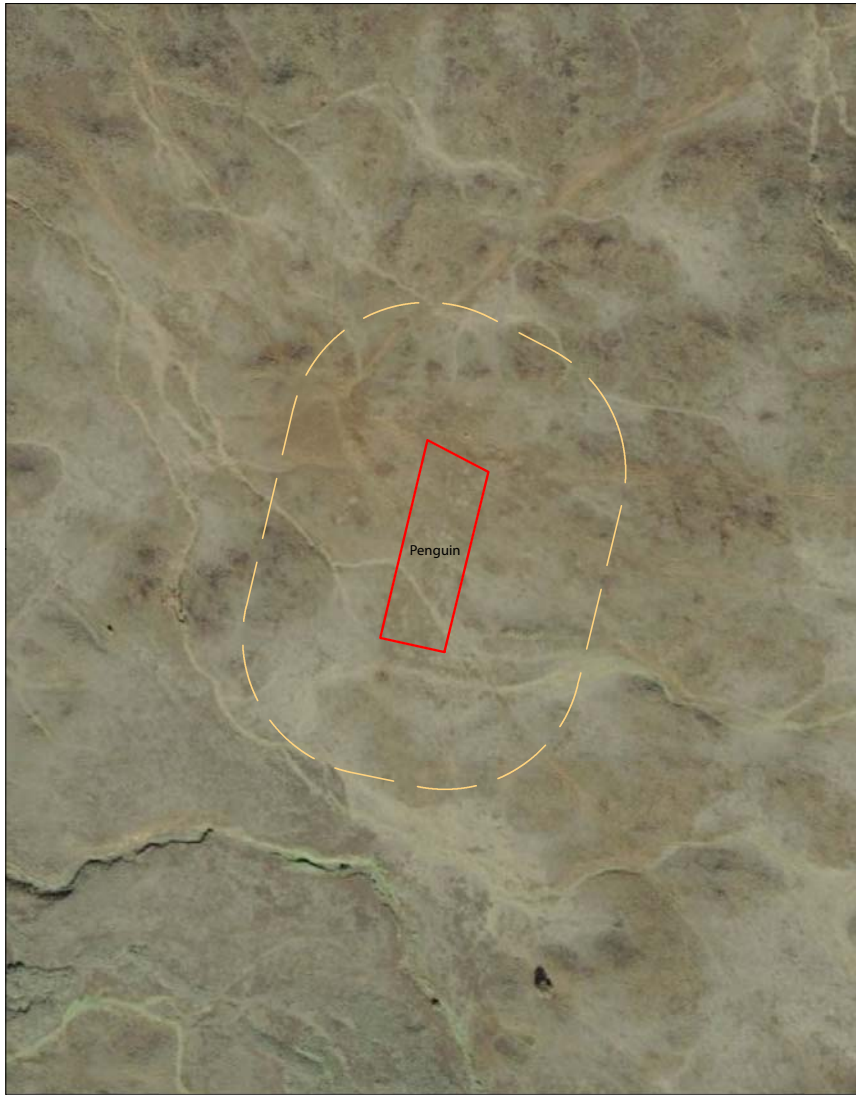


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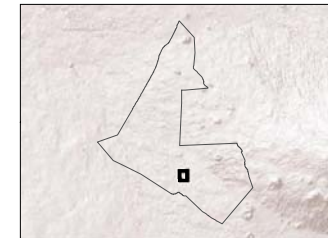
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PTA KEAMUKU - 11
POHAKULOA TRAINING AREA KEAMUKU PARCEL
PEACOCK



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

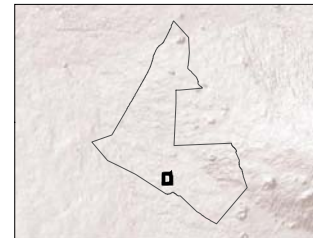
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PTA KEAMUKU - 12
POHAKULOA TRAINING AREA KEAMUKU PARCEL
PENGUIN



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

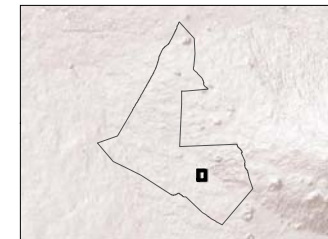
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PTA KEAMUKU - 13
POHAKULOA TRAINING AREA KEAMUKU PARCEL
ROBIN



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

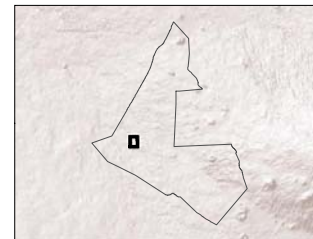
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PTA KEAMUKU - 14
POHAKULOA TRAINING AREA KEAMUKU PARCEL
ROOSTER



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 Zone Perimeter
 Evaluation Area

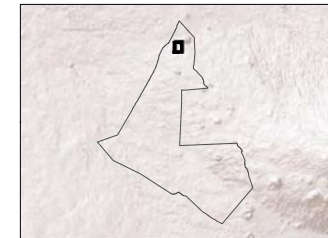
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PTA KEAMUKU - 15
POHAKULOA TRAINING AREA KEAMUKU PARCEL
SEAGULL



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red Box] Zone Perimeter
 [Dashed Yellow Circle] Evaluation Area

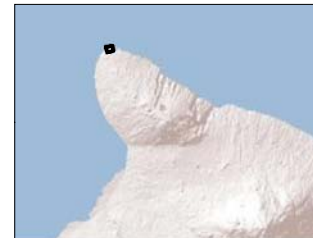
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PTA KEAMUKU - 16
POHAKULOA TRAINING AREA KEAMUKU PARCEL
TURKEY



Satellite imagery from ESRI and (c) 2010 Microsoft Corporation and its data suppliers.



LEGEND
 [Red Box] Zone Perimeter
 [Dashed Yellow Circle] Evaluation Area

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 SCALE IN METERS
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 SCALE IN FEET



UPOLU - 1
UPOLU AIRPORT
UPOLU RUNWAY



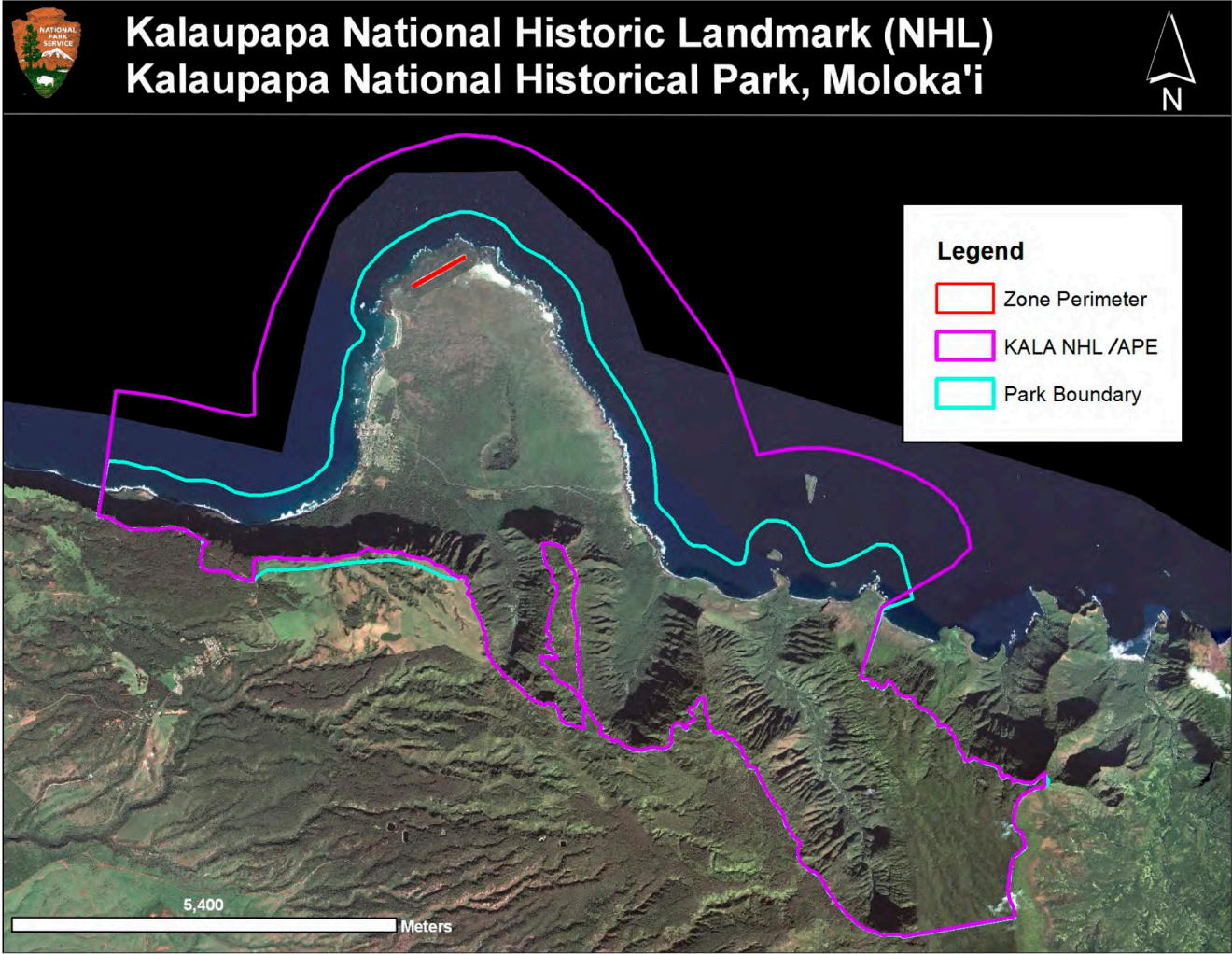


Table 4-1. Additional Archaeological Surveys at Army Training Areas on Oahu

APE - LZs	Survey Completeness	Sites Found within APE	Potential for Additional Surface/Subsurface Resources
KTA			
Kahuku Split Rock	Partial	None	Yes/Yes
X-Strip	Partial	None	Yes/Yes
KLOA			
Black	Partial	None	Yes/Yes
Elephant's Foot	None	Unknown	Yes/Yes
Nixon	None	Unknown	Yes/Yes
Non Stop	Partial	None	Yes/Yes
Red	None	None	Yes/Yes

Table 4-2. Additional Archaeological Surveys at PTA

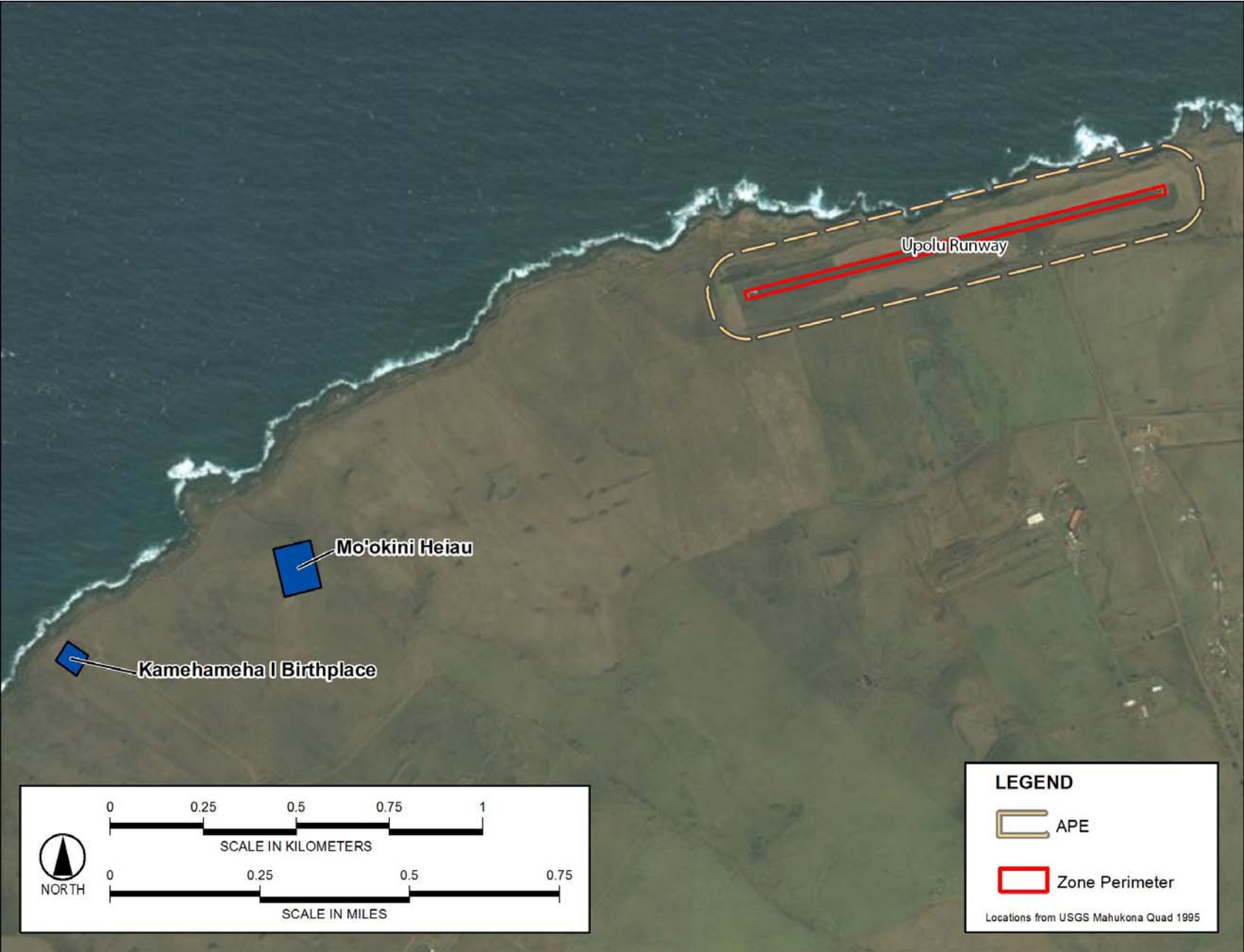
APE - LZs	Survey Completeness	Sites Found within APE	Potential for Additional Surface/Subsurface Resources
PTA - Main Area			
Brad	Unknown	None	Yes/No
DZ Fisher	Complete/surface only	None	Yes/No
FARP 12A	Partial	None	Yes/No
FARP 17	Partial	None	Yes/No
FARP 18	Aerial survey only	None	Yes/No
Noble	Partial	None	Yes/No
Yankee	Unknown	None	Yes/No
PTA - Keamuku			
Albatross	Complete/surface only	Fence line	Yes/No
Blue Hen	Complete/surface only	Fence line	Yes/No
Buzzard	Complete/surface only	Fence line	Yes/No
Chick	Complete/surface only	None	Yes/No
Finch	Complete/surface only	20855	Yes/No
Gamecock	Complete/surface only	None	Yes/No
Seagull	Complete/surface only	None	Yes/No
Turkey	Complete/surface only	Fence line	Yes/No

MCB Hawaii Basing of MV-22 and H-1 Aircraft in Support of III MEF in Hawaii EIS Programmatic Agreement (PA) Attachment 13



MCB Hawaii Showing Alternatives A and B for VMM Hangar

Programmatic Agreement - Attachment 14
Upolu Airport APE and Historic Property Locations



**Programmatic Agreement
Attachment 15**

Consulting Party	Consulting Party Representative
'Aha Kukaniloko/Koa Mana	Mr. Tom Lenchanko
Advisory Council on Historic Preservation (ACHP)	Ms. Louise Brodnitz
Aloha First	Ms. Kauai Maukele
Boyd 'Ohana	Ms. Nau Kamalii
Cheryl Lovell-Obatake	Ms. Cheryl Lovell-Obatake
Diamond 'Ohana	Mr. Van Horn Diamond
Flores-Case 'Ohana	Mr. Kalani Flores
Hawaii's Thousands Friends	Ms. Donna Wong
Hawaiian Civic Club of Waimanalo	Ms. Kuulei Laughlin
Historic Hawaii Foundation (HHF)	Ms. Kiersten Faulkner
Ho`okipa Network -Kaua`i	Ms. Puanani Rogers
Hui Malama I Na Kupuna O Hawai'i Nei	Mr. Halealoha Ayau
Ka Lahui Hawaii	Ms. Clara Sweets Matthews
Ka 'Ohana O Kalaupapa	Ms. Valerie Monson
Kahu Ku Mauna	Mr. Chad Kālepa Baybayan
Kalaupapa National Historic Park (NHP)	Mr. Steve Prokop (Superintendent)
Kekoolani 'Ohana	Ms. Terrilee Napua Kekoolani Raymond
Kekumano 'Ohana	Mr. Cy Harris
Keohokalole 'Ohana	Ms. Emalia Keohokalole
Koolauloa Hawaiian Civic Club	Ms. Cathleen Mattoon
Ko'olaupoko Hawaiian Civic Clubs	Ms. Mahealani Cypher
Ku Ching	Mr. Ku Ching
Lori Buchanon	Ms. Lori Buchanon
Moanike'ala Akaka	Ms. Moanike'ala Akaka
Na Ohana Papa O Mana	Mr. Kunane Aipoalani
Nation of Hawaii	Mr. Dennis Kanahale
National Trust for Historic Preservation (NTHP)	Ms. Elizabeth Merritt
Native Hawaiian Researchers Ohana	Mr. Fred Cachola
NHL Program Manager National Park Service (NPS)	Ms. Elaine Jackson-Retondo
Oahu Island Burial Council	Chairperson
Office of Hawaiian Affairs (OHA)	Mr. Keola Lindsey
Olds 'Ohana	Ms. Nalani Olds
Ortiz 'Ohana	Ms. Delilah Ortiz
Paguyo 'Ohana	Ms. Ella Pagauyo
Paoa Kea Lono 'Ohana	Ms. Donna Ann Camvel
Prince Kuhio Hawaiian CC	Ms. Chasmin Sokolovski
Pu'uhonua O Waimanalo Neighborhood Board	Ms. Regina Makai
Richard Likeke Papa	Mr. Richard Likeke Papa
Sec of Interior, NPS Pacific Western Regional Office (PWRO), Regional Director	Ms. Christine Lehnertz
State Historic Preservation Officer (SHPO)	Mr. William Aila
Temple of Lono	Mr. Clive Cabral
Waimanalo Neighborhood Board	Mr. Wilson Kekoa Ho

List of Consulting Parties

**Programmatic Agreement
Attachment 15**

NEW PARTIES (Jun-Jul 2012):	
	Ms. Kaleo Paik
Kaleikini `Ohana	Ms. Paulette Kaonohi Kaleikini
Kapu clan of Kauaula Maui	Mr. J.R. Keonekapu Willams
Kekaha, Kauai Hawaiian Homestead Assn.	Ms. Leah Perreira
Michael Seeley	Mr. Michael Seeley (Waimea, Kauai)
Lynn McNutt	Ms. Lynn McNutt (Waimea, Kauai)
Isaac Harp	Mr. Isaac Harp (Waikoloa, Hilo, Hawaii Is.)
Samuel Kaleleiki	Mr. Samuel Kaleiki, Hilo HI

PROJECT DESCRIPTION: HANGAR 1 REHABILITATION

Work includes renovation work on facilities 101, 167, 168, 170, 194, 195, 196, and the aircraft parking area around facility 101 (Hangar 1). All of these facilities and the majority of the paving are in a National Historic Landmark, Kaneohe Naval Air Station, designated in 1987.

In order to provide an adequately configured hangar for the in-coming HMLA squadron, the following renovations are proposed for Hangar 1 (see figures below):

- Installation of photo-voltaic panels on roof
- Apron repaving
- Renovation of existing crew and equipment space
- Renovation of existing administrative space
- Renovation of existing toilet rooms
- Installation of new bridge cranes in each hangar bay
- Installation of three machine room-less passenger elevators (to meet American with Disabilities Act Guidelines)
- Repainting of the hangar ceiling, including rust treatment
- Installation of an Aqueous Fire Fighting Foam (AFFF) fire protection system, including containment facilities on the exterior of the hangar and trenching of the hangar floor
- Seismic upgrades
- Mechanical, electrical, fire control, and information systems upgrades
- Painting and general repair
- Recoating and restriping of hangar bays
- Replace all exterior metal doors with fiber reinforced plastic (FRP) doors
- Retain and repair historic windows/window wall.

Buildings 167, 168, 170, 194, 195, and 196 will get new fire sprinklers.

Proposed work on the aircraft apron area includes: resurfacing, sealing, striping, modernization of the sewer and drainage collection systems, installation of AFFF infrastructure, fire protection upgrades, and the installation of a concrete parking ramp at aircraft parking locations. Also, storm water quality units along with outlet structures on the bay-side of the facility will be required to mitigate runoff of contaminants. The AFFF fire protection requires the addition of an external collection and holding system. An additional fire waterline loop system and fire hydrants will provide protection to the apron and exterior of Hangar 1.

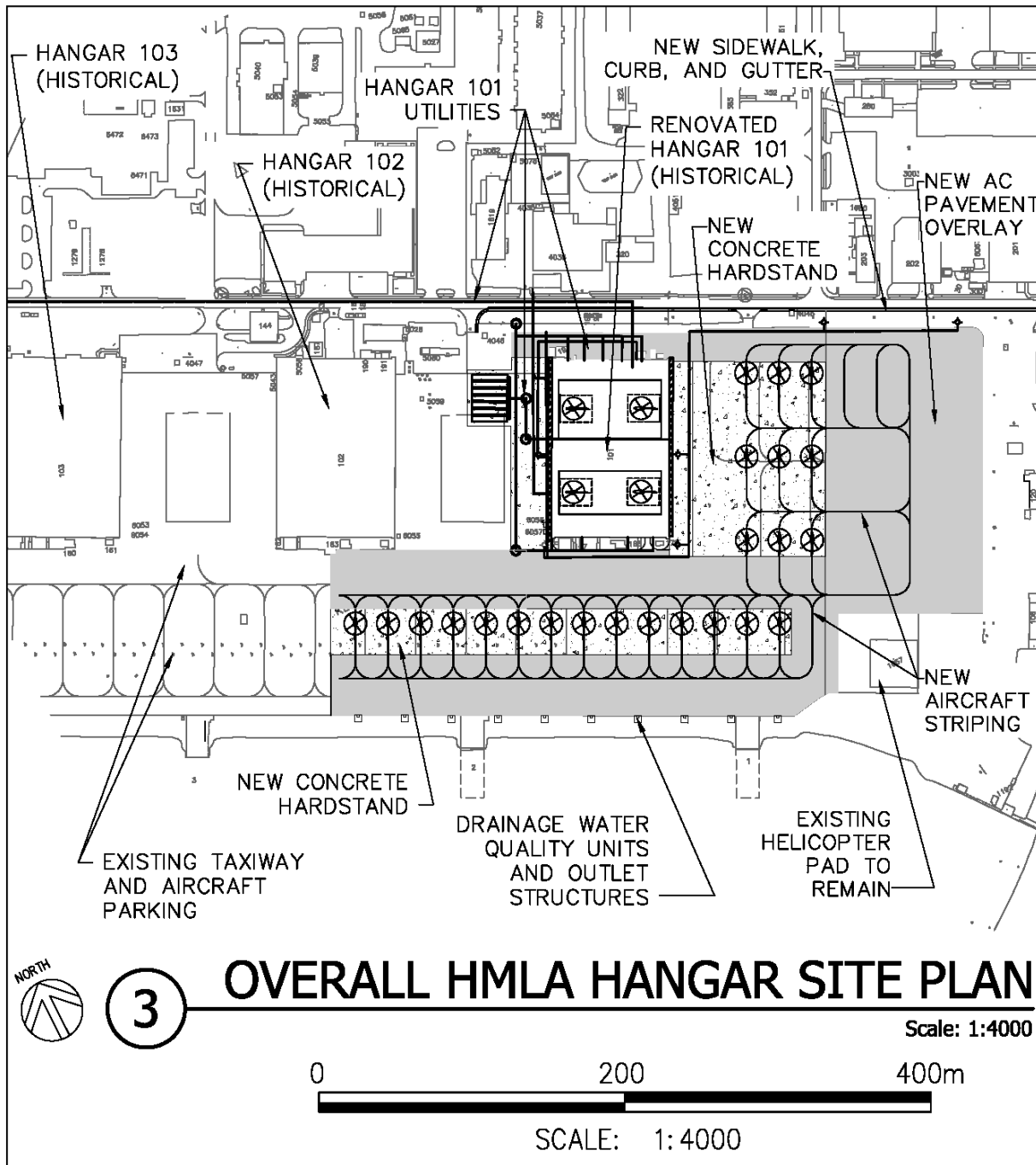
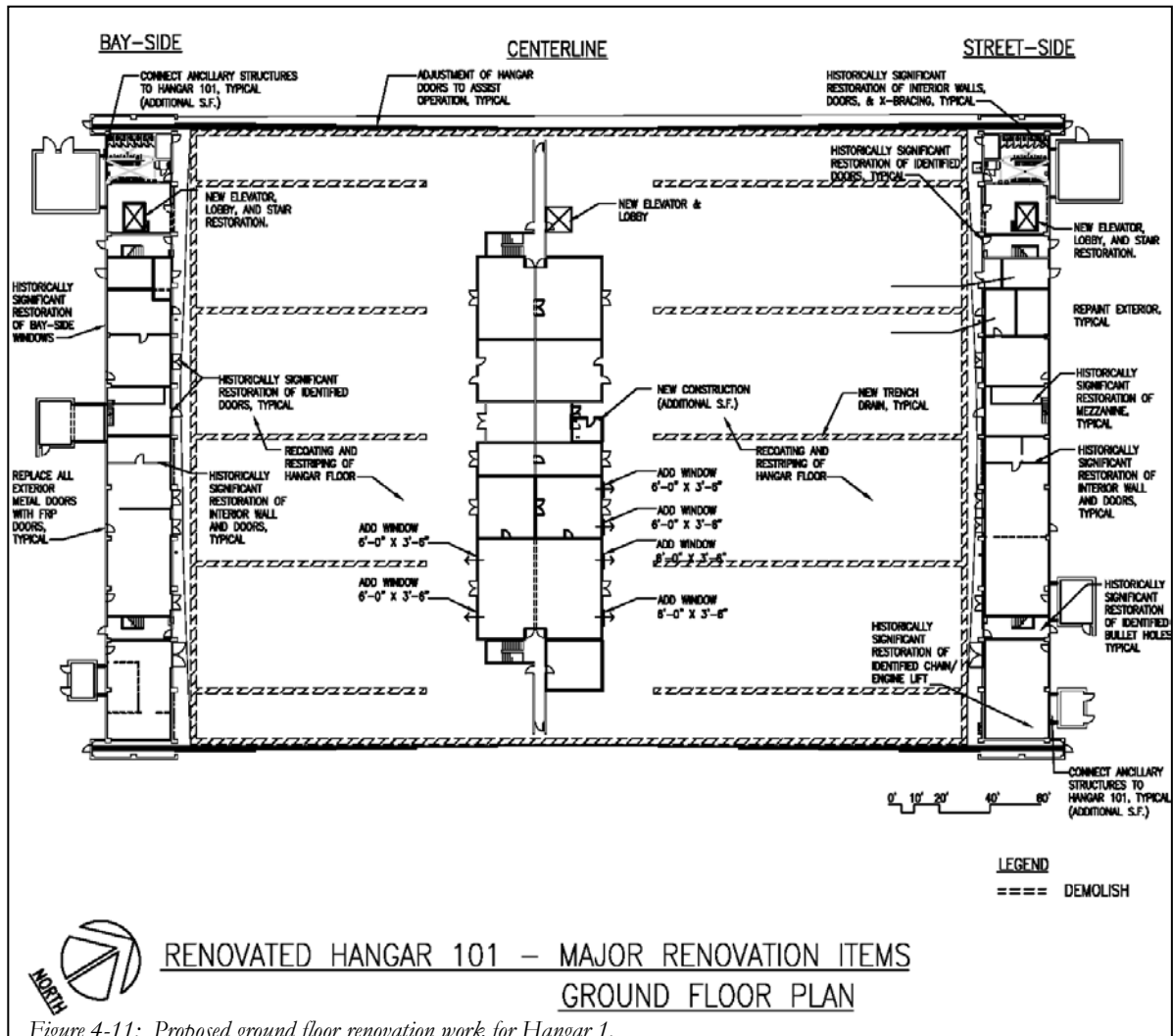


Figure 4-10: Site plan of proposed work on the aircraft apron around Hangar 1.



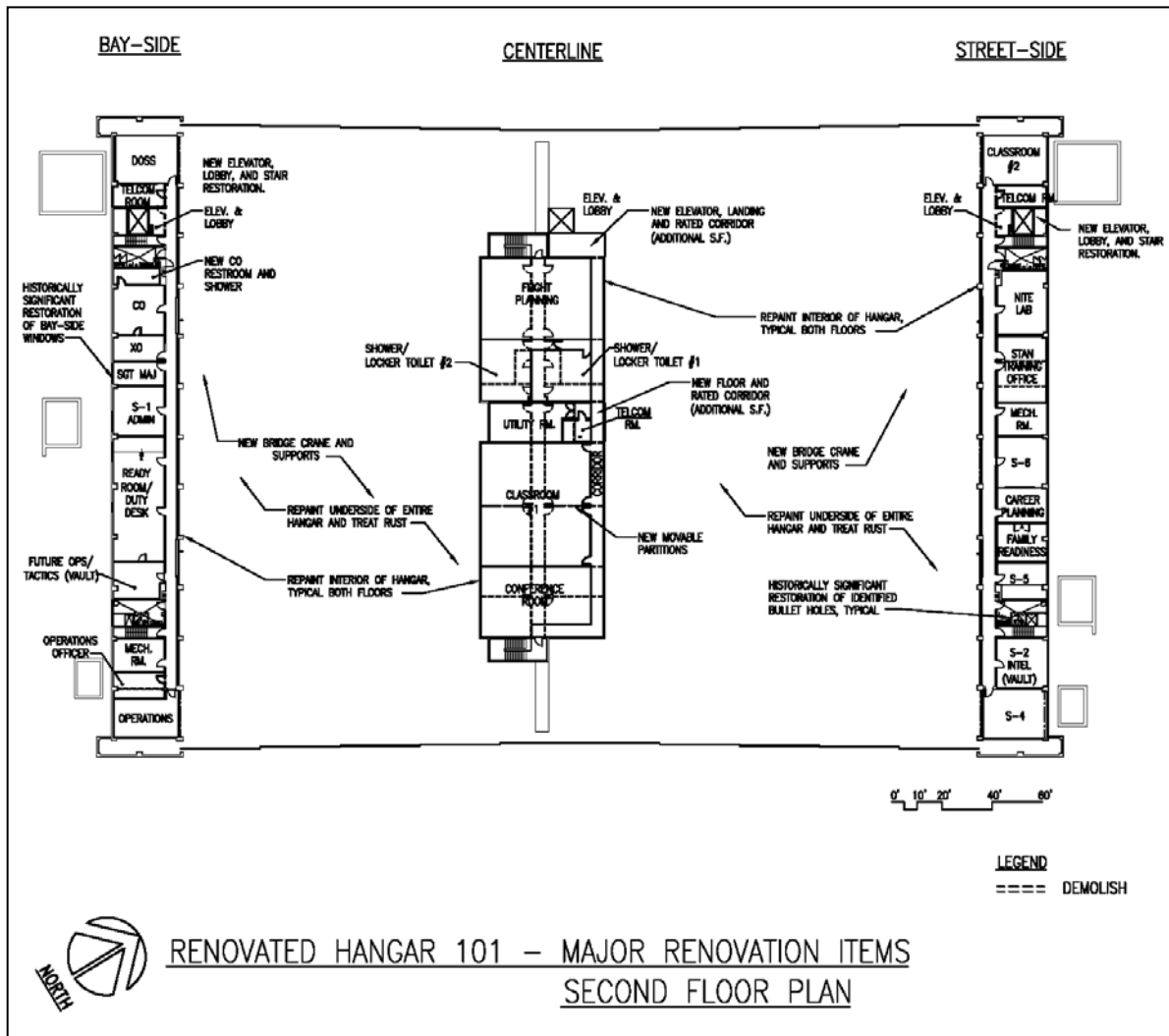


Figure 4-12: Proposed second floor renovation work for Hangar 1.

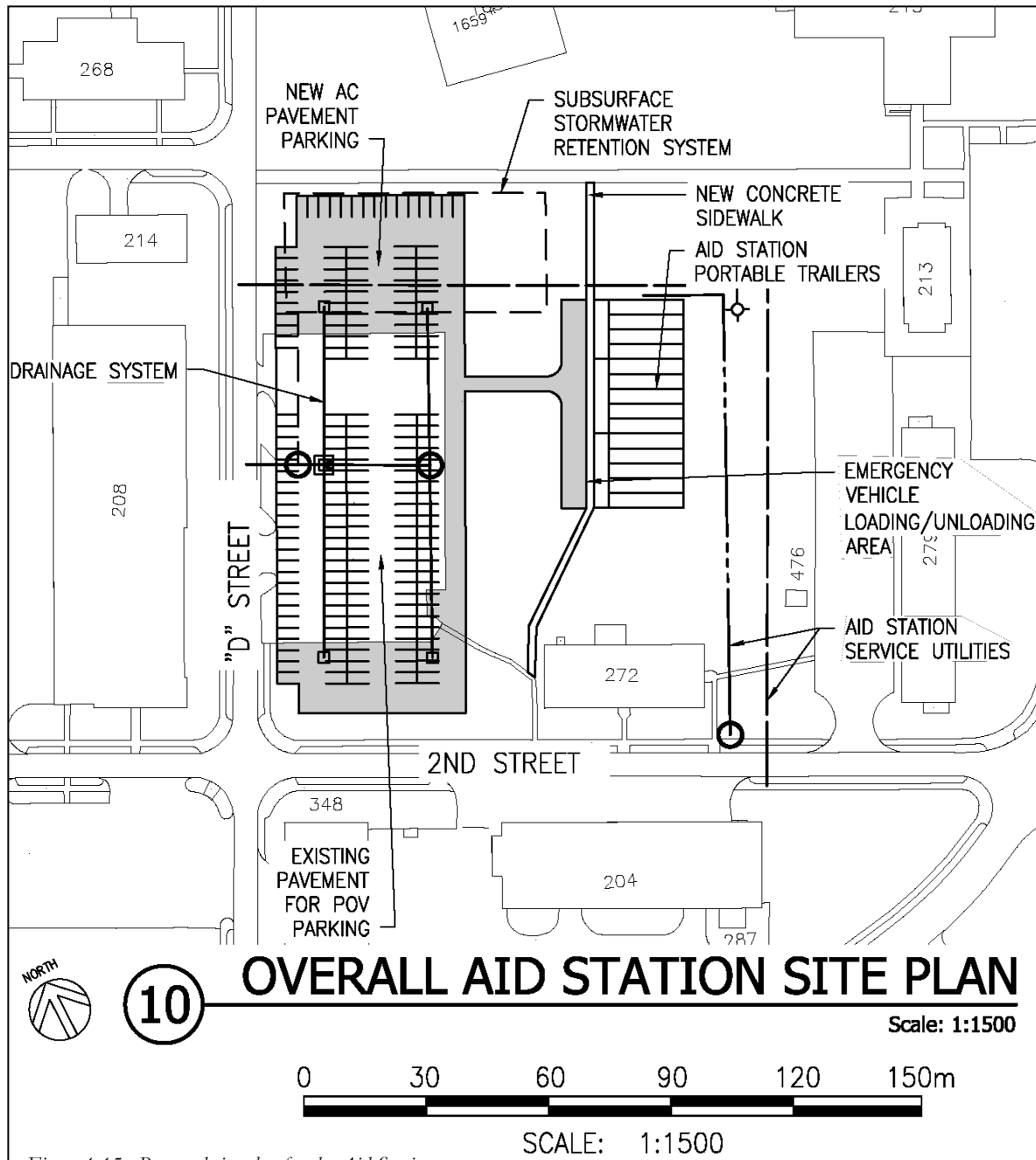


Figure 4-15: Proposed site plan for the Aid Station.

HANGARS 1-4: AIRCRAFT APRON SURFACE DAMAGE SURVEY

On 15 and 17 February 2011, Mason Architects surveyed the concrete aircraft areas surrounding Hangars 1 through 4 to record visible damage from the 7 December 1941 Japanese attack on Naval Air Station Kaneohe. This was accomplished by walking the concrete paved areas, noting any apparent attack damage or other historic features on the map below, and photographing the features so they can be identified for later detailed studies. The features identified include; two repaired bomb craters, eleven areas of spalled concrete damage (some with concrete repairs), and the center point and remnant ghost lines of a historic compass rose. The compass rose is in the area of a current active helicopter-landing pad and was not closely approached.

The damage at the eleven spalled concrete areas presented the widest variation in forms and appearances. Three of the areas (areas a, h, & i, see Figures 3-10) are large sections covered with small individual pits or pockmarks on the surface of the concrete. Some of these pits resemble bullet impact marks and others appear to be formed by chips of concrete spalling off, leaving a sharper edge to the resulting pit and revealing a piece of aggregate at the bottom. One of the other areas (area k, at the seaplane ramp between Hangars 2 and 3) has a collection of several apparent bullet impact marks that are more widely spaced than the individual pits at the pockmarked areas. The remaining seven damaged areas exhibit pitting that has conglomerated to form larger spalled depressions, several inches across in all directions. Some of these areas have been partially or completely repaired by filling the spalls with concrete that is finished flush with the surrounding surface.

The two bomb craters are irregularly shaped, typically between about 7 feet to 11 feet in diameter. Each bomb crater has a distinctive pattern of radial scars in the surrounding concrete that were formed by the impact of fragments thrown from the exploding bomb. Some of these radial scars are found over 40 feet from the center of the bomb crater. The bomb craters themselves have been filled with concrete. Although some areas of concrete near the craters have been replaced, thereby removing evidence of radial scars, the extant scars have not been repaired.

The figures below show the locations of the features and photos of the individual areas.

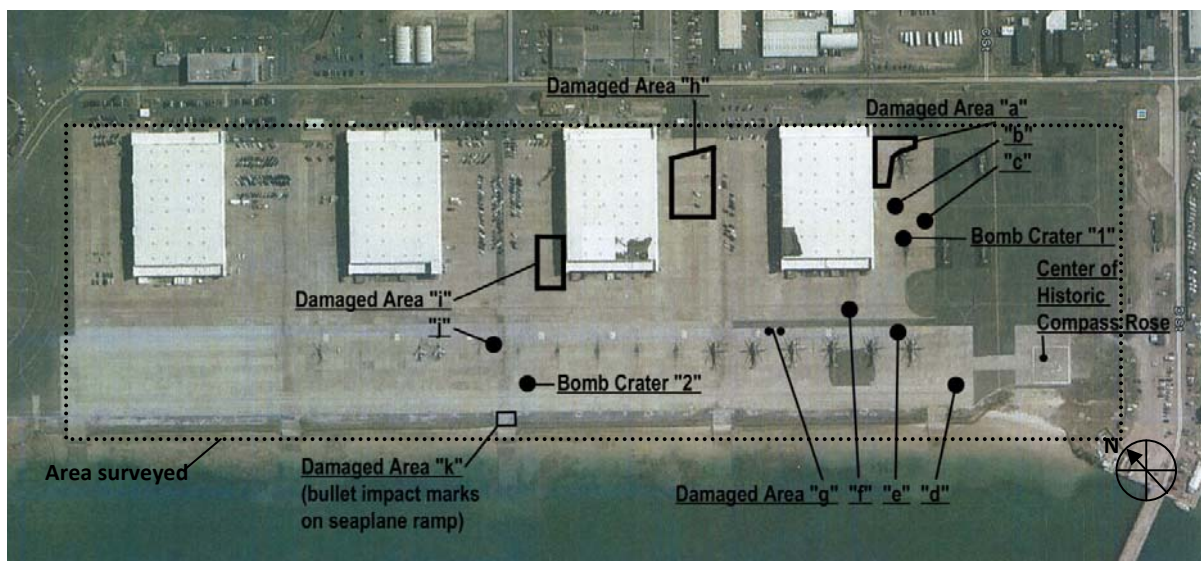


Figure 3-10: Aerial photo indicating the area surveyed and the locations of features.

Bomb Crater "1"



Figure 3-11: Bomb Crater "1" in the center of the photo; radial scars in the lower left corner; the corner of Hangar 1 at the upper right, and the bay in the upper center.



Figure 3-12: Bomb Crater "1" in the center of the photo. Photo taken looking southeast.

Damaged Area "a"



Figure 3-13: Damaged Area "a." Photo taken looking north, toward Hangar 1.



Figure 3-14: Damaged Area "a." Photo taken looking northwest.



Figure 3-15: Damaged Area "b." Photo taken looking west, toward Hangar 1.



Figure 3-16: Damaged Area "b." Photo taken looking southwest.



Figure 3-17: Damaged Area "c," the repaired concrete area in the center of the photo. Photo taken looking toward Hangar 1.



Figure 3-18: Damaged Area "c." Photo taken looking east.



Figure 3-19: Damaged Area "d," pitted and repaired area in the center of the photo. Photo taken looking north, toward Hangar 1.



Figure 3-20: Damaged Area "d." Photo taken looking west.



Figure 3-21: Damaged Area "e," pitted and repaired area in the center of the photo. Photo taken looking northeast, toward Hangar 1.



Figure 3-22: Damaged Area "e." Photo taken looking south, toward the bay.



Figure 3-23: Damaged Area "f," pitted and repaired area in the center of the photo. Photo taken looking north, toward Hangar 1.



Figure 3-24: Damaged Area "f." Photo taken looking west, toward the bay.



Figure 3-25: Damaged Area "g." Photo taken looking northeast, toward Hangar 1.



Figure 3-26: Damaged Area "g." Photo taken looking south.



Figure 3-27: Damaged Area "h." Photo taken looking northeast.



Figure 3-28: Damaged Area "h." Photo taken looking northeast.



Figure 3-29: Bomb Crater "2," Large repair in the center of the photo; radial damage surrounding the repair; replaced concrete section in the center left of the photo. Photo taken looking northeast, between Hangars 2 & 3.



Figure 3-30: Bomb Crater "2." Photo taken looking south, toward the bay.

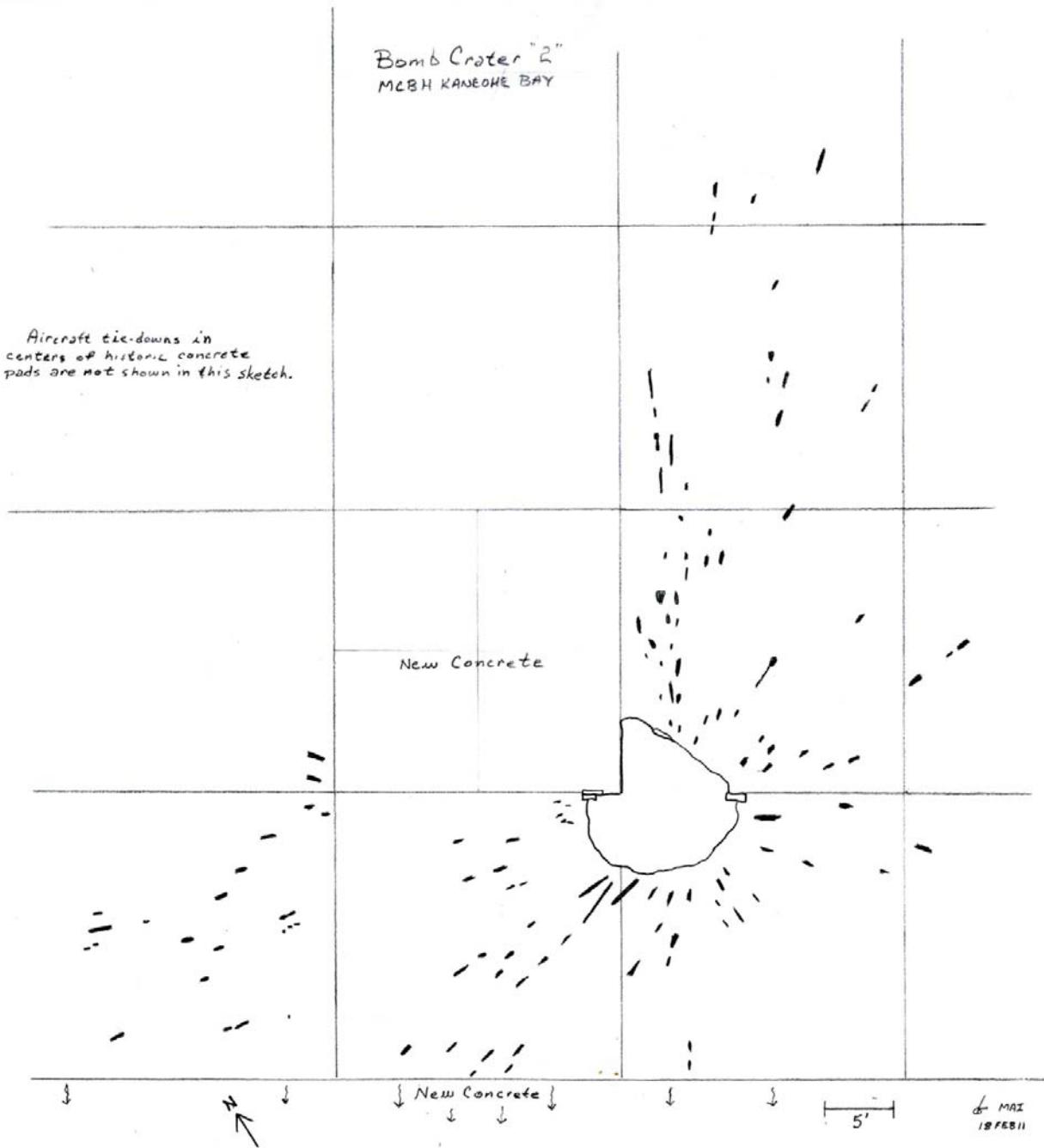


Figure 3-312: Bomb Crater "2." Sketch depicting the extent of the apparent features from a bomb; large repaired area and radiating damaged areas.



Figure 23: Damaged Area "i." Photo taken looking northeast, toward Hangar 2.



Figure 24: Damaged Area "i." Photo taken looking southwest, toward the bay.



Figure 25: Damaged Area "j," pitted and repaired areas in the center and lower left of the photo. Photo taken looking east, toward Hangar 2.



Figure 26: Damaged Area "j." Photo taken looking southeast, toward the bay.



Figure 27: Damaged Area "k," apparent bullet impact mark in Seaplane Ramp 3. Photo taken looking east, toward Hangars 1 & 2.



Figure 28: Damaged Area "k," apparent bullet impact mark in Seaplane Ramp 3. Photo taken looking south, toward the bay.



Figure 29: Historic compass rose. Photo taken looking southeast.

Attachment 18: Archaeological Resources in the APE

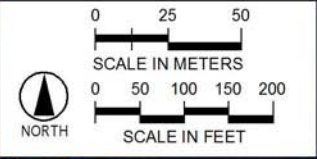


5490




Albatross (Apron)

5487

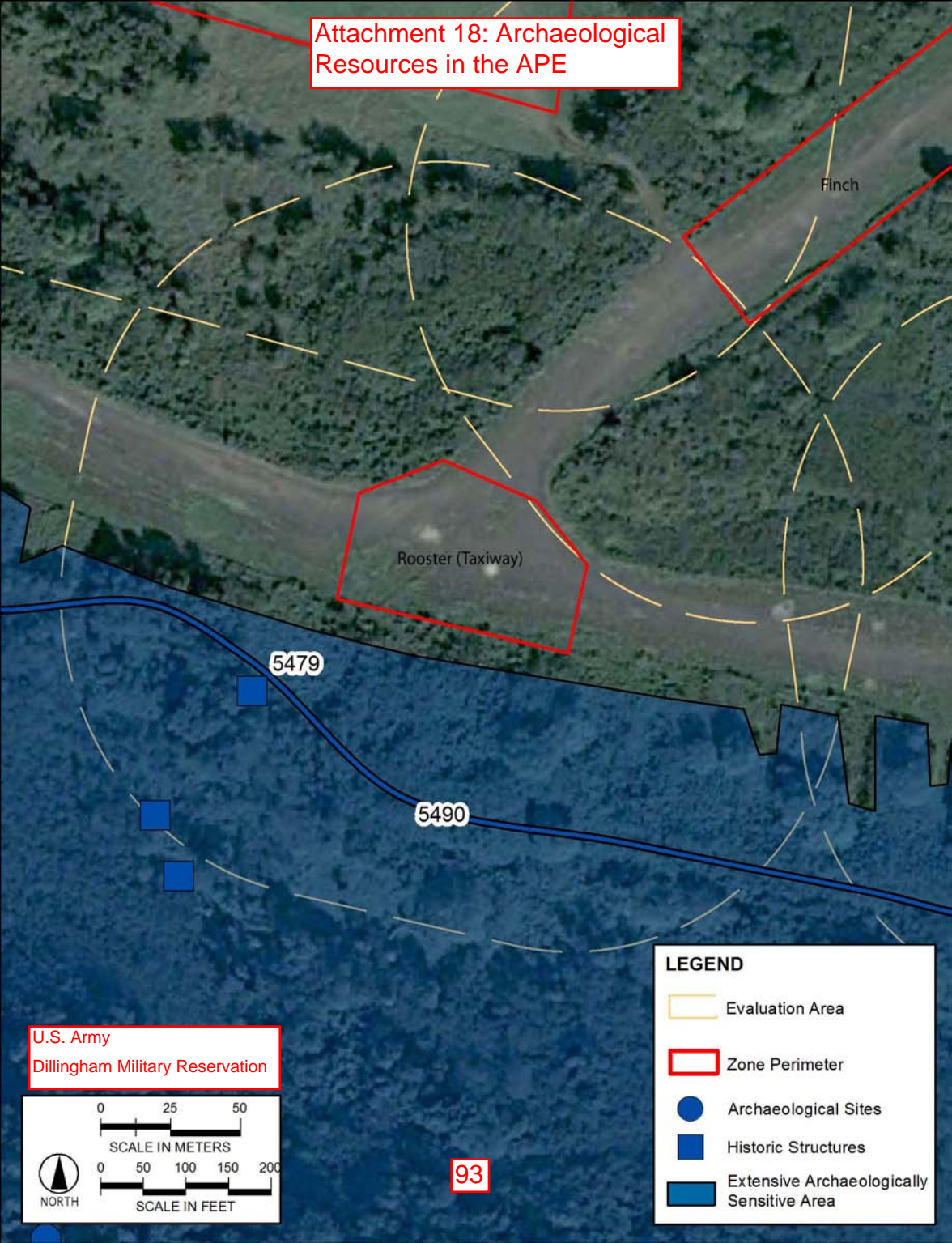
U.S. Army
Dillingham Military Reservation



LEGEND

-  Evaluation Area
-  Zone Perimeter
-  Archaeological Sites
-  Historic Structures
-  Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE



Finch

Rooster (Taxiway)

5479

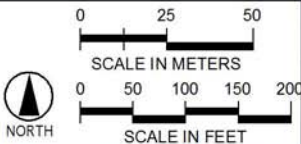
5490

93

U.S. Army
Dillingham Military Reservation

LEGEND

- Evaluation Area
- Zone Perimeter
- Archaeological Sites
- Historic Structures
- Extensive Archaeologically Sensitive Area



Attachment 18: Archaeological Resources in the APE



Finch

Finch

Blue Jay (New)

5482

5490

U.S. Army
Dillingham Military Reservation

0 25 50

SCALE IN METERS



NORTH

0 50 100 150 200

SCALE IN FEET

94

LEGEND

Evaluation Area

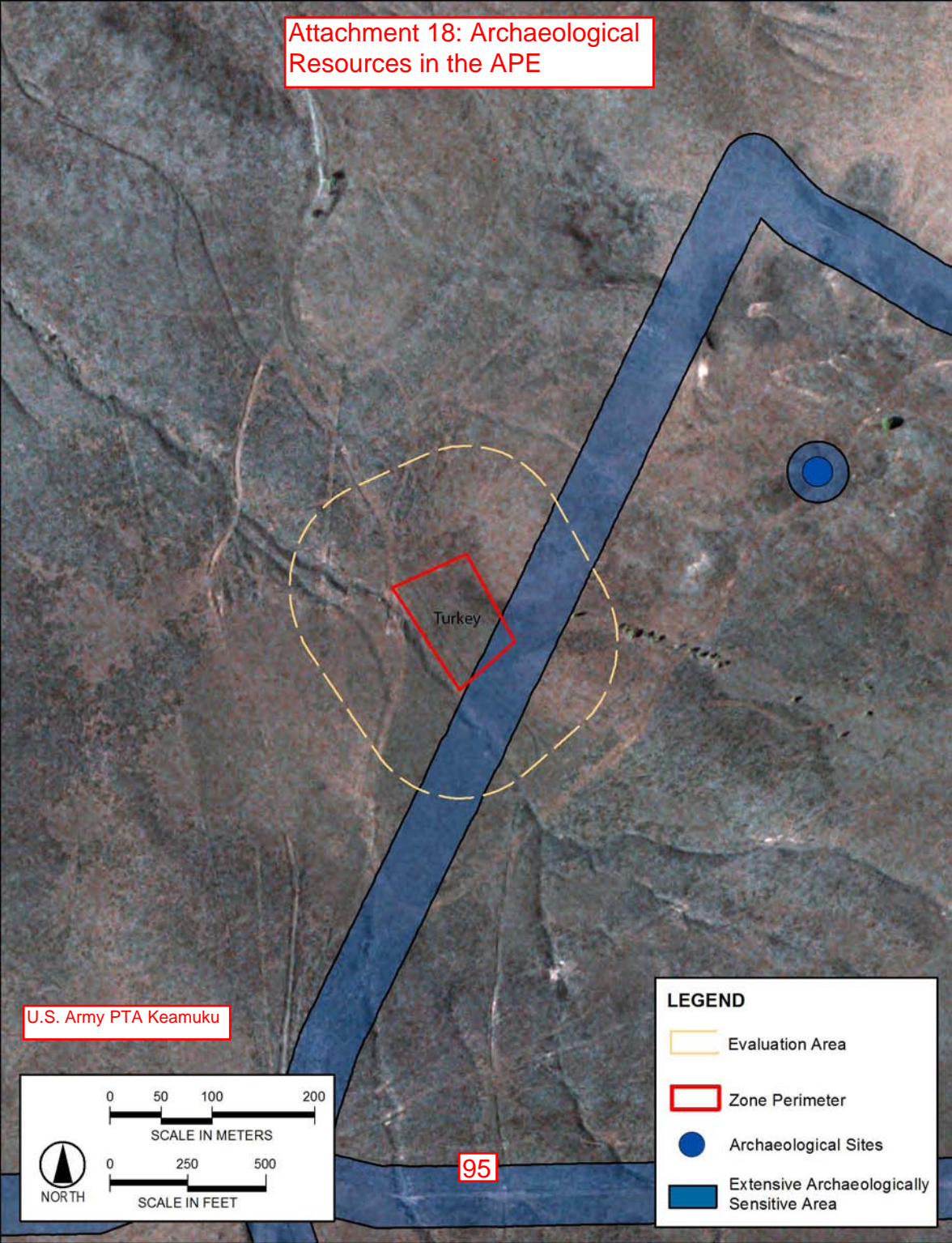
Zone Perimeter

Archaeological Sites

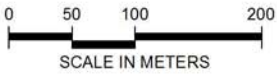
Historic Structures

Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE



U.S. Army PTA Keamuku



SCALE IN METERS




NORTH




SCALE IN FEET


95

LEGEND

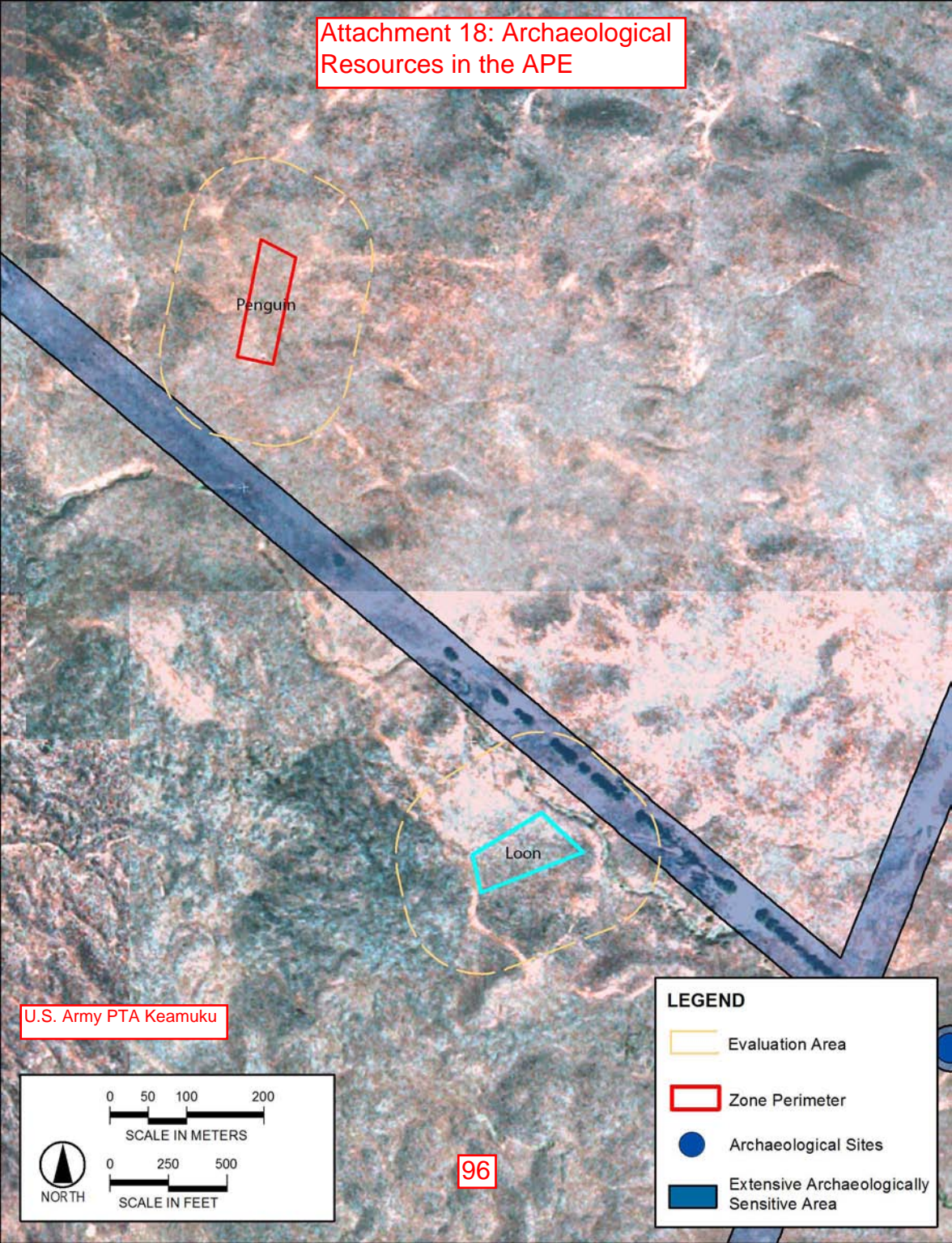
 Evaluation Area

 Zone Perimeter

 Archaeological Sites

 Extensive Archaeologically Sensitive Area

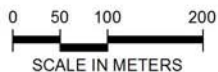
Attachment 18: Archaeological Resources in the APE



Penguin

Loon

U.S. Army PTA Keamuku



SCALE IN METERS



NORTH



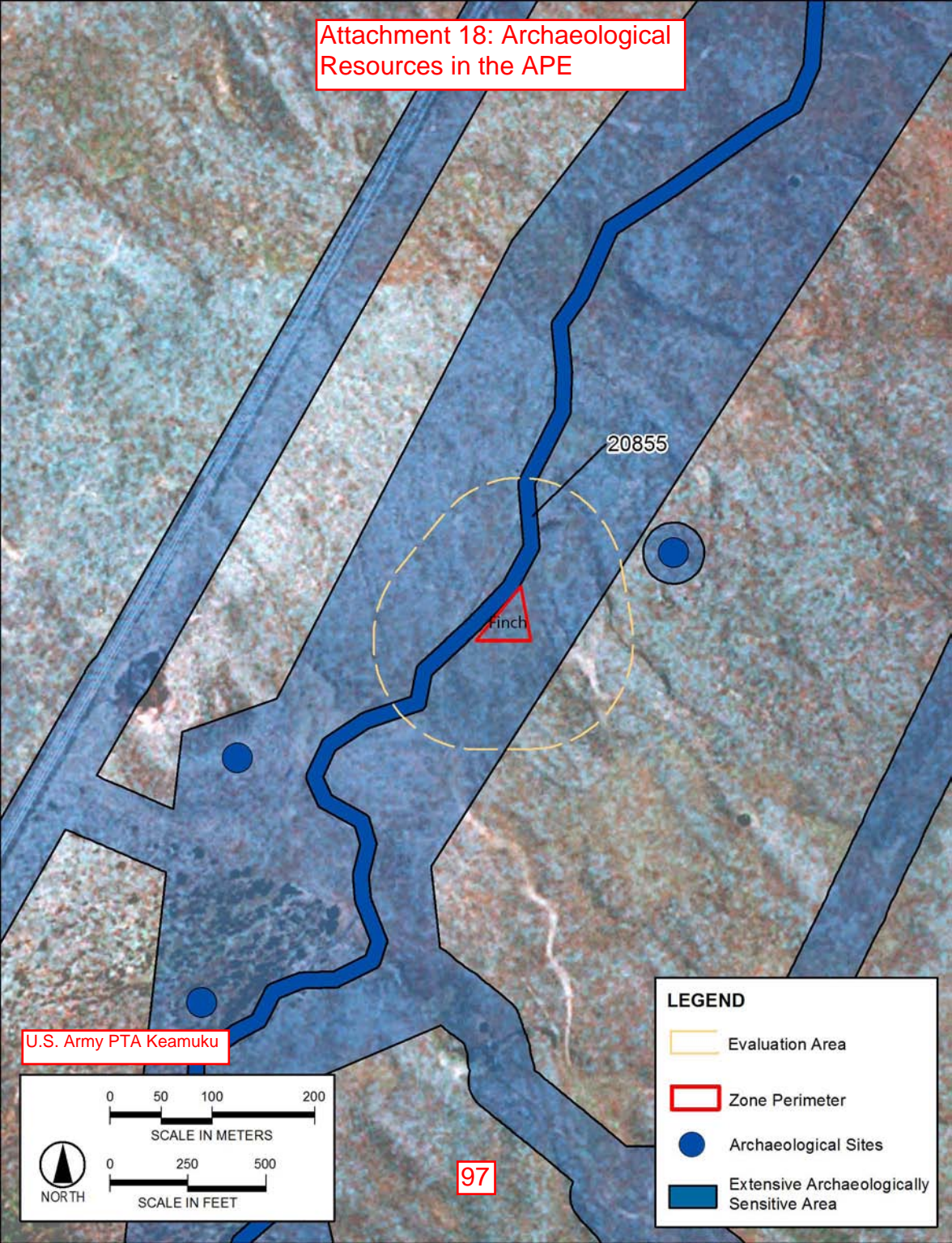
SCALE IN FEET

96

LEGEND

-  Evaluation Area
-  Zone Perimeter
-  Archaeological Sites
-  Extensive Archaeologically Sensitive Area

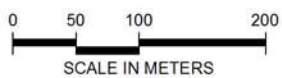
Attachment 18: Archaeological Resources in the APE



20855

Finch

U.S. Army PTA Keamuku



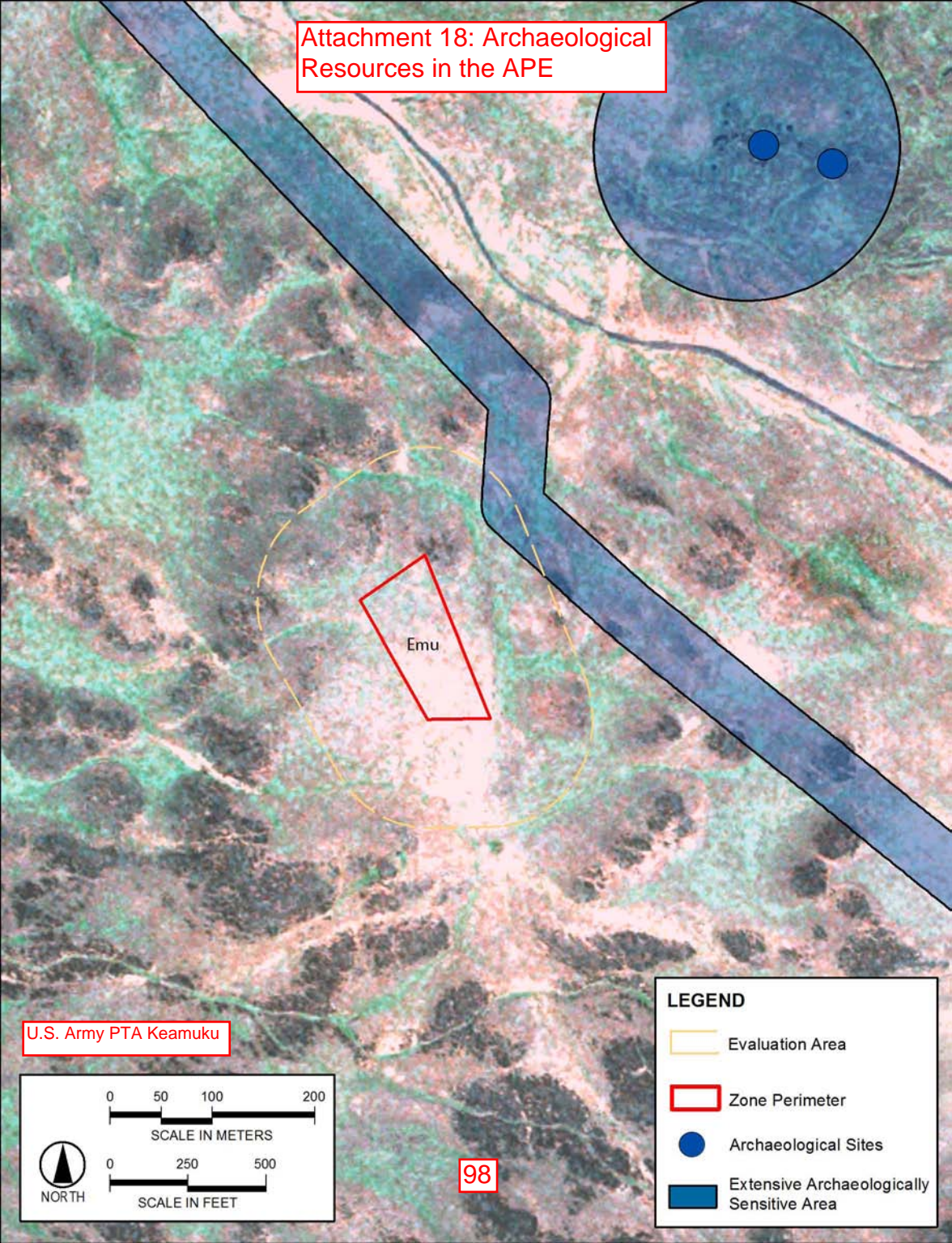
NORTH



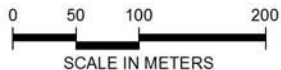
LEGEND

- Evaluation Area
- Zone Perimeter
- Archaeological Sites
- Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE



U.S. Army PTA Keamuku



SCALE IN METERS



NORTH





SCALE IN FEET


98

LEGEND

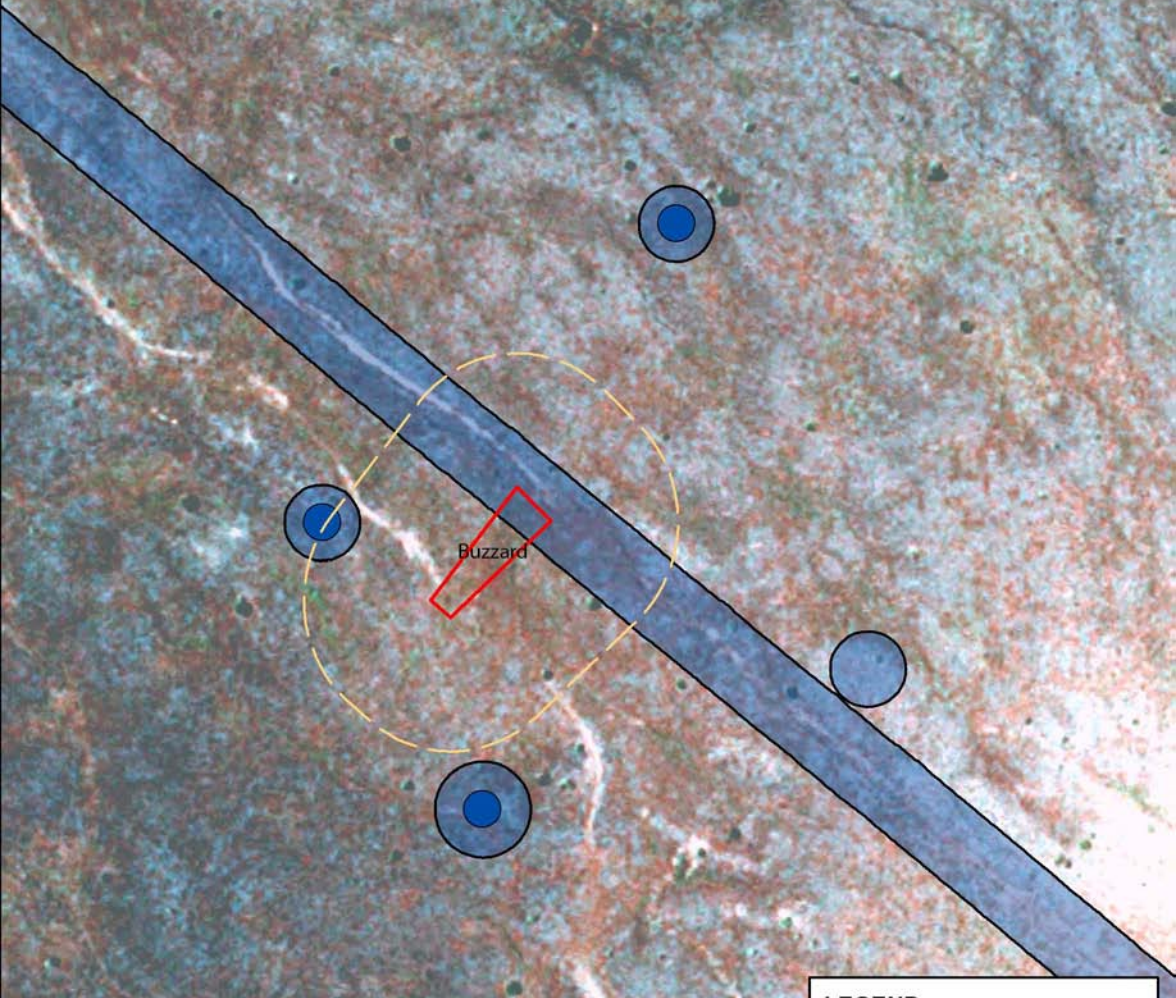
 Evaluation Area

 Zone Perimeter

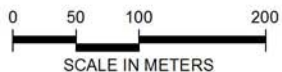
 Archaeological Sites

 Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE



U.S. Army PTA Keamuku



SCALE IN METERS



NORTH



SCALE IN FEET

LEGEND

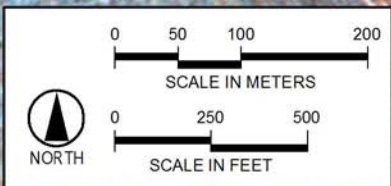
-  Evaluation Area
-  Zone Perimeter
-  Archaeological Sites
-  Extensive Archaeologically Sensitive Area

99

Attachment 18: Archaeological Resources in the APE







U.S. Army PTA Keamuku



100

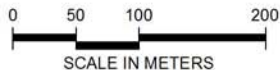
LEGEND

-  Evaluation Area
-  Zone Perimeter
-  Archaeological Sites
-  Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE



U.S. Army PTA Keamuku



SCALE IN METERS




NORTH




SCALE IN FEET


101

LEGEND

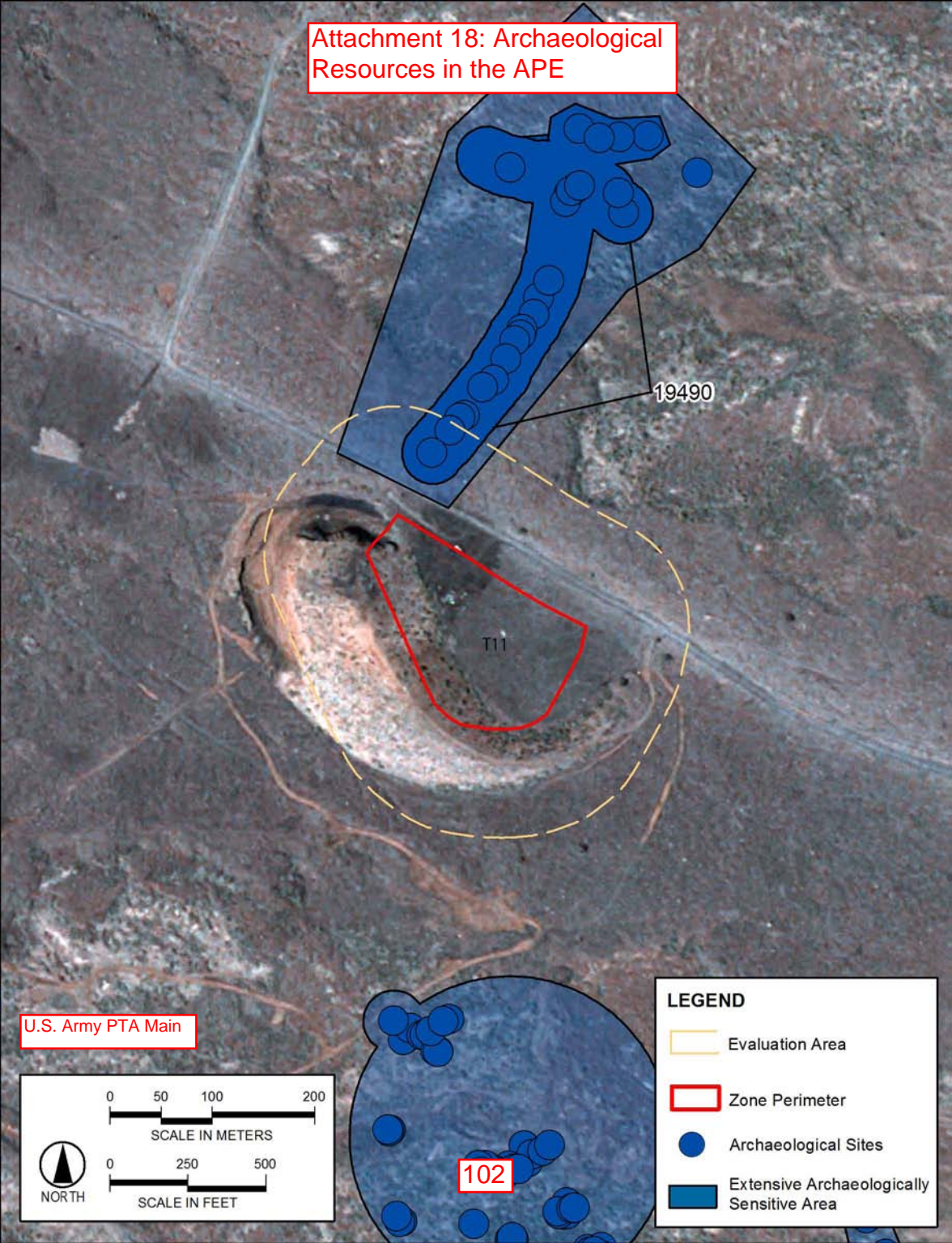
 Evaluation Area

 Zone Perimeter

 Archaeological Sites

 Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE



19490

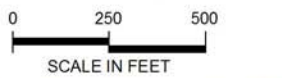
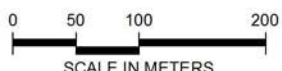
T11

102

U.S. Army PTA Main

LEGEND

-  Evaluation Area
-  Zone Perimeter
-  Archaeological Sites
-  Extensive Archaeologically Sensitive Area



Attachment 18: Archaeological Resources in the APE

LEGEND

- Evaluation Area
- Zone Perimeter
- Historic Structures
- Extensive Archaeologically Sensitive Area

0826

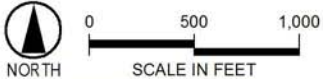
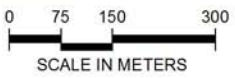
2028



1832

2027

U.S. Navy PMRF



2001

1833

103

1885

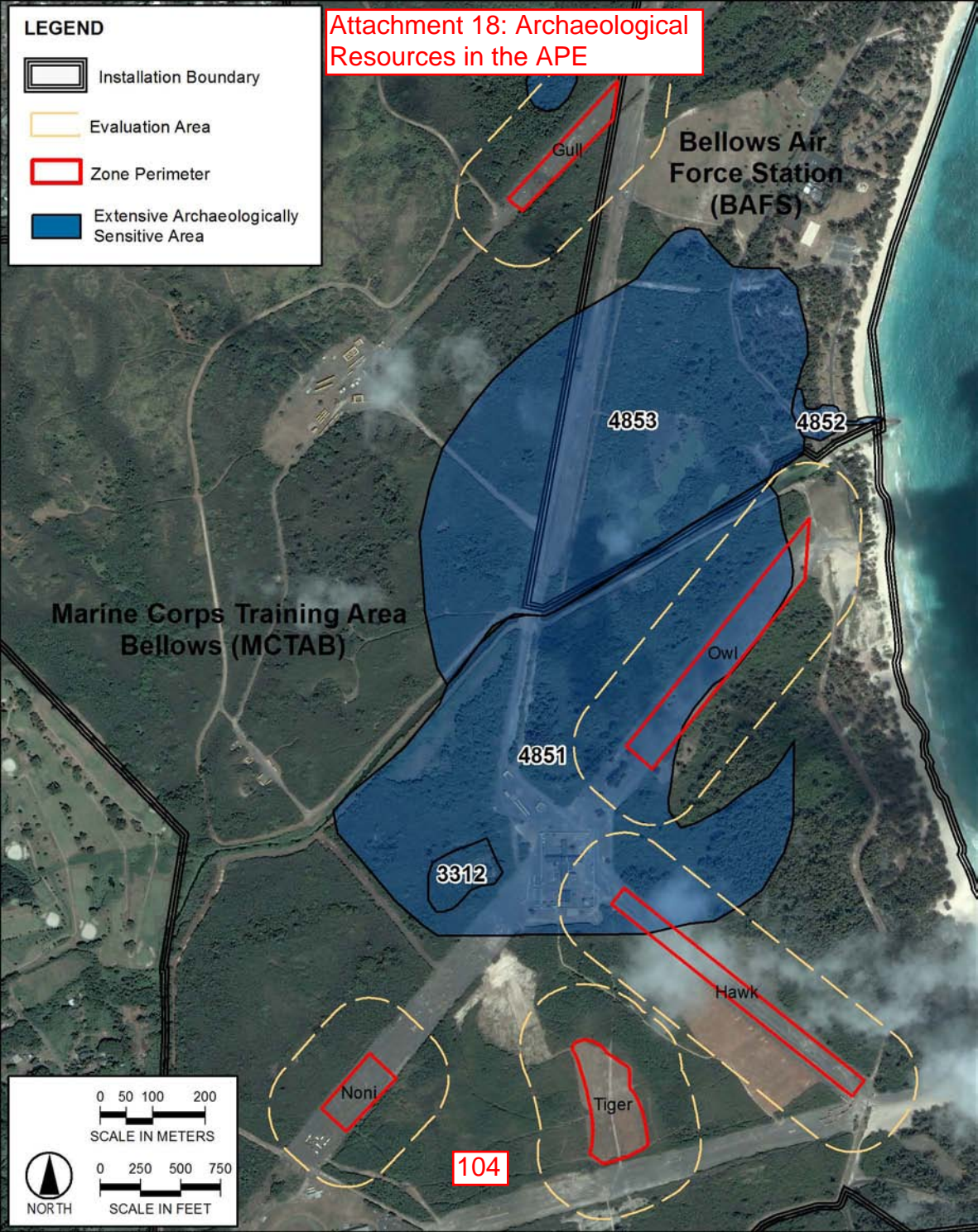
0721

2000

Attachment 18: Archaeological Resources in the APE

LEGEND

- Installation Boundary
- Evaluation Area
- Zone Perimeter
- Extensive Archaeologically Sensitive Area



Marine Corps Training Area Bellows (MCTAB)

Bellows Air Force Station (BAFS)

Gull

4853

4852

Owl

4851

3312

Hawk

Noni

Tiger

104

0 50 100 200
SCALE IN METERS

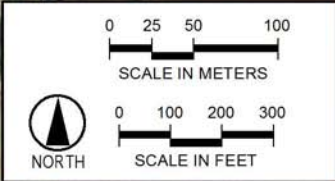
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SCALE IN FEET

NORTH




Attachment 18: Archaeological Resources in the APE



Hawaii Air National Guard - Maui



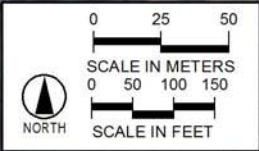
LEGEND

-  Evaluation Area
-  Zone Perimeter
-  Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE






MCB Hawaii
Kaneohe Bay

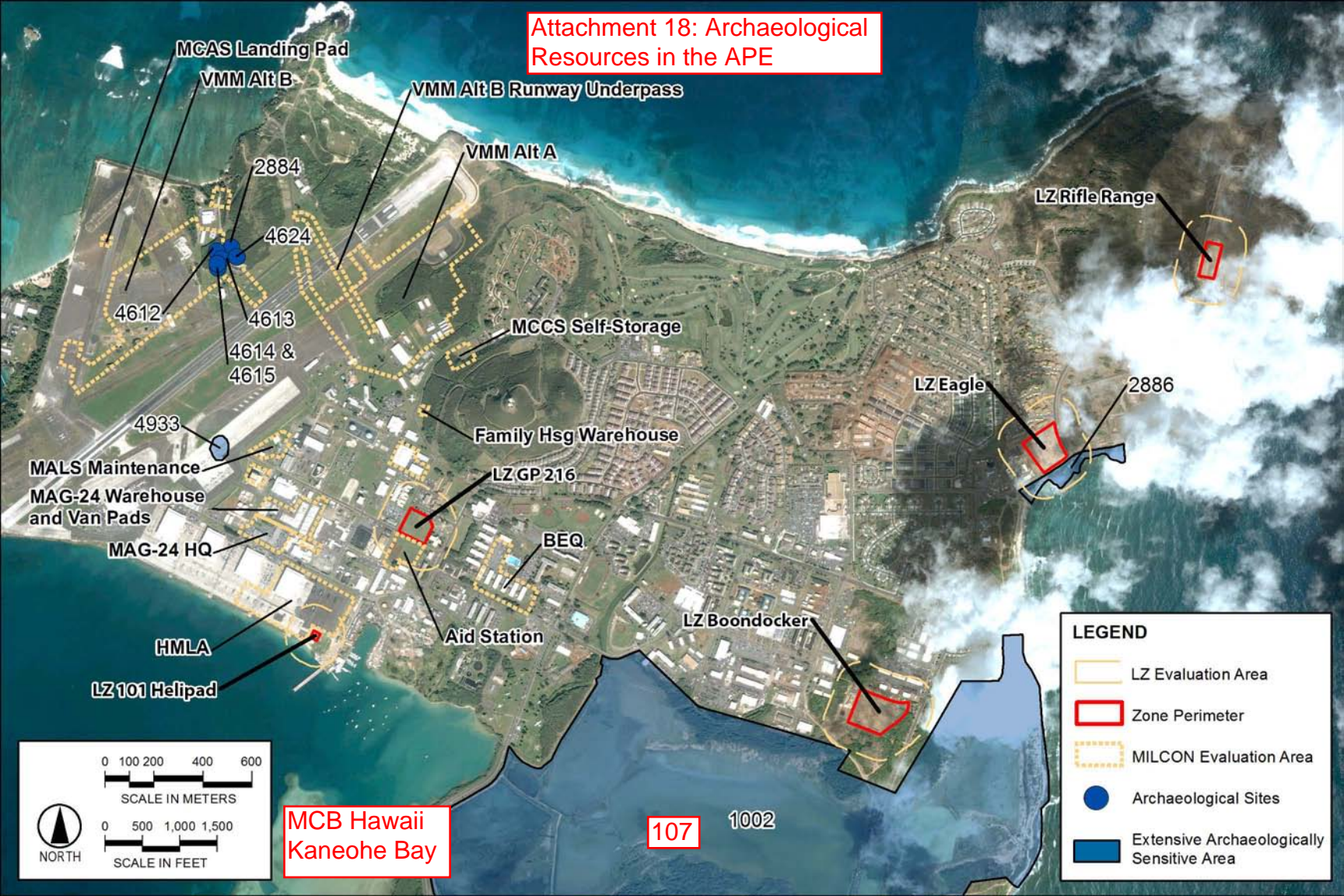


106

LEGEND

-  Evaluation Area
-  Zone Perimeter
-  Extensive Archaeologically Sensitive Area

Attachment 18: Archaeological Resources in the APE



MCAS Landing Pad
VMM Ait B

VMM Ait B Runway Underpass

VMM Ait A

LZ Rifle Range

2884

4624

MCCS Self-Storage

4612

4613

4614 &
4615

Family Hsg Warehouse

LZ Eagle

2886

MALS Maintenance
MAG-24 Warehouse
and Van Pads

LZ GP 216

MAG-24 HQ

BEQ

Aid Station

LZ Boondocker

HMLA

LZ 101 Helipad

LEGEND

- LZ Evaluation Area
- Zone Perimeter
- MILCON Evaluation Area
- Archaeological Sites
- Extensive Archaeologically Sensitive Area

0 100 200 400 600

SCALE IN METERS



0 500 1,000 1,500

SCALE IN FEET

**MCB Hawaii
Kaneohe Bay**

107

1002