WAIKOLOA MANUEVER AREA
QUALITY ASSURANCE SEEDING
AREAS R & N - M

BY

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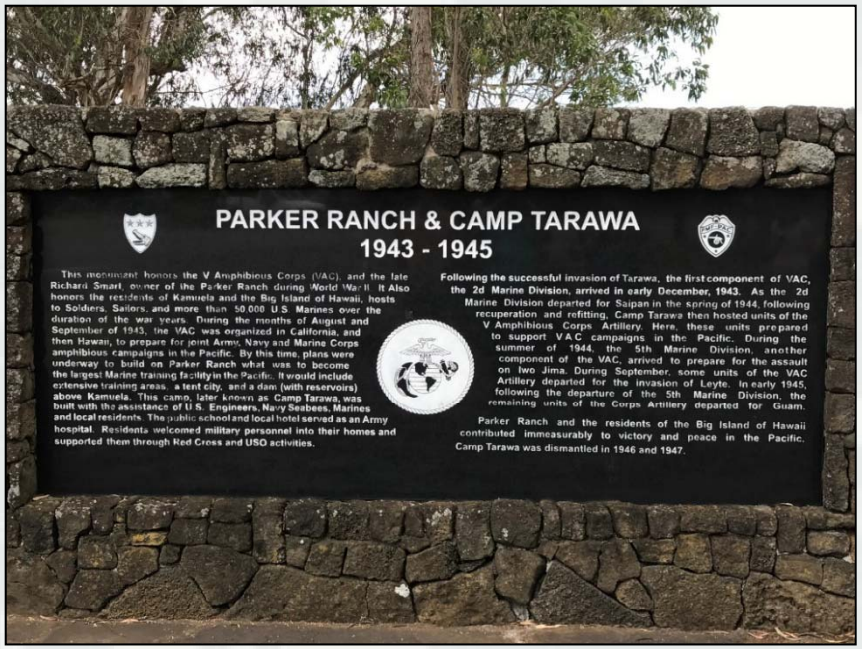
BUILDING STRONG®

INTRODUCTION

Waikoloa Maneuver Area (WMA)

- **After Pearl Harbor - Company F, 299th Infantry/medical detachment was stationed in Waimea**
- **December 1943, 100,220 acres was leased from Parker Ranch**
  - **2nd Marine Division withdrew from of Tarawa and sent to the Waimea Camp (4-mo rest, recuperation, and training).**
  - **Camp Waimea was renamed Camp Tarawa**
    - **enlarged to > 50,000 soldiers**
    - **June 1944 - The 2nd Marine Div was shipped out for the battles of Saipan and Tinian**
  - **July - Nov 1944 - 5th Marine Division occupied Camp Tarawa & prepared for the invasion of Iwo Jima.**
  - **Area around Camp Tarawa was used for maneuvers, live-fire practice range, and artillery impact area.**



INTRODUCTION

Waikoloa Maneuver Area (WMA)

- ► **Site was favored:**
  - • **terrain and climate representative of Pacific Islands**
    - ▷ **Particularly well suited for training required to support the upcoming Pacific Island battles**
      - ○ **Saipan**
      - ○ **Okinawa**
      - ○ **Iwo Jima**
      - ○ **Tinian**
    - ▷ **Size sufficient for training division (simultaneous maneuvers and work out weapons firing problems.**
    - ▷ **Rolling lava fields provided excellent observation areas for artillery and heavy weapons.**
  - ▪ **WMA was returned to the control of the Parker Ranch in September 1946**

INTRODUCTION

Waikoloa Maneuver Area

Based upon historic records the following types of munitions have been identified within the WMA:

- **4.2-in., 60mm, 81mm mortars;**
- **60mm and 81mm illumination mortars;**
- **60mm and 81mm white phosphorus (WP) mortars;**
- **2.36-in., 2.75-in., 3.5-in., and 4.5-in. rockets;**
- **Japanese 25mm anti-aircraft/anti-tank round;**
- **Japanese knee mortars and hand grenades;**
- **37mm, 75mm, 105mm, and 155mm HE projectiles;**
- **75mm and 105mm WP projectiles;**
- **Rifle and hand grenades;**
- **Practice and HE land mines; and**
- **.22-caliber to .50-caliber small arms.**

INTRODUCTION

Waikoloa Maneuver Area

- 100,220.5 acres
- Broken into series of Munitions Response Sites (MRS's)
- Areas of interest for talk:
- M, N & R
- 2001 EE/CA
  - 38 MEC items, 2,160 MD, 1,343 small arms (13 Sectors)
  - Area N (Sector 9): No MEC (105 mm just outside)
  - Area R (Sector 7): No MEC, but MEC was recovered during TCRA of Ouli Parcel (Just to west)
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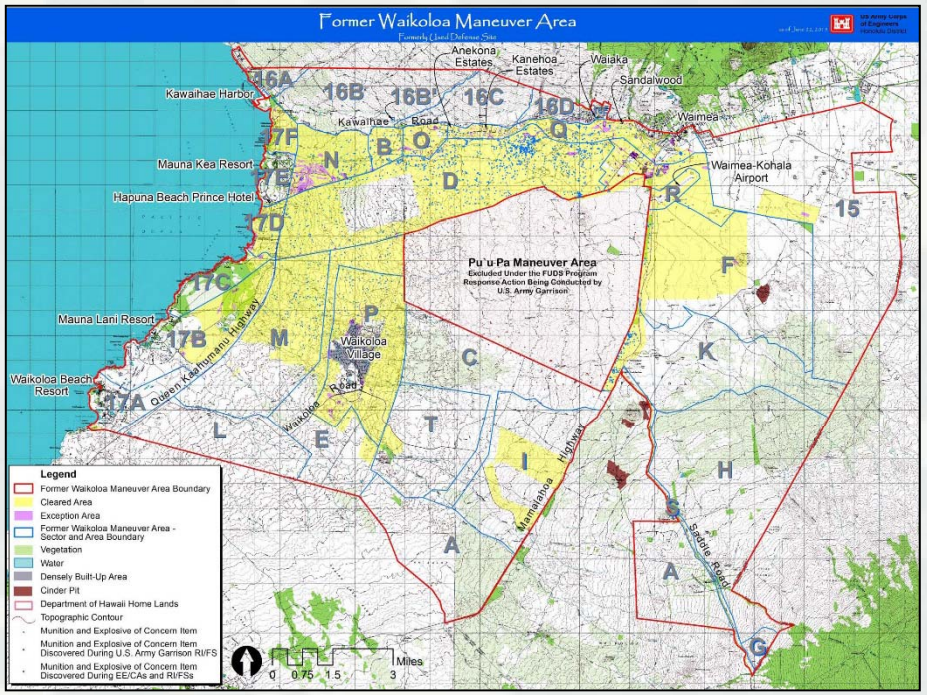

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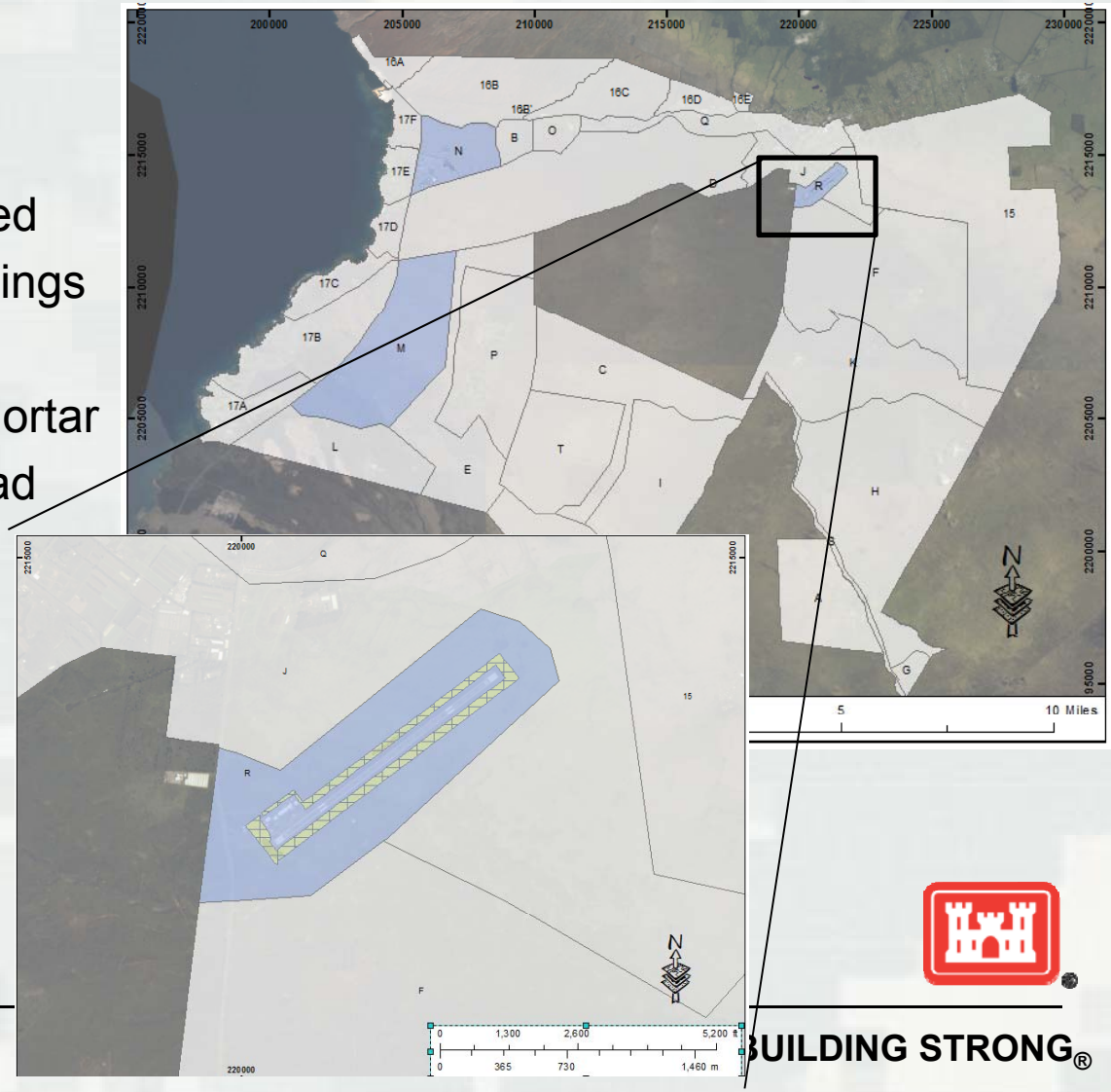
Area R

2 NTCRA (2009 – 2012)

- 259.9 acres cleared
- 89.9 acres not investigated
  - Airport, fencing, buildings
- 3 MEC items recovered
  - 60 mm illumination mortar
  - 2.36-in rocket warhead
  - MKII grenade



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AREA N

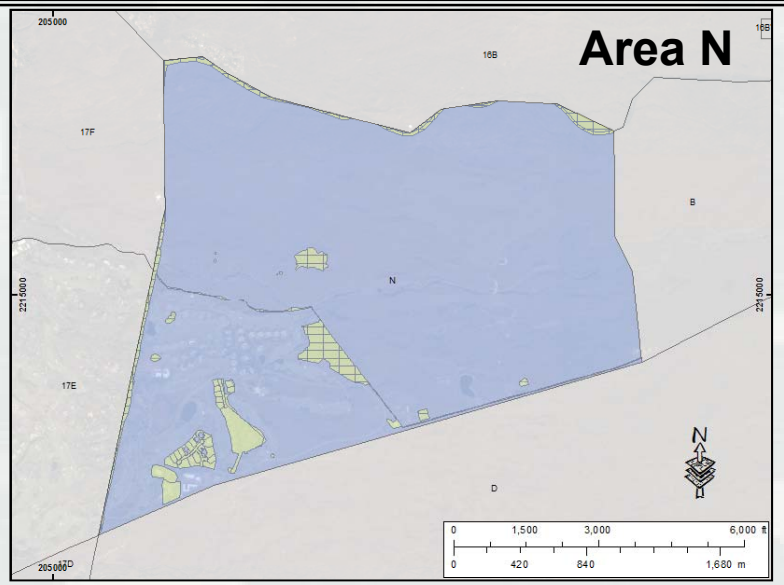
3 NTCRA (2008 – 2013)

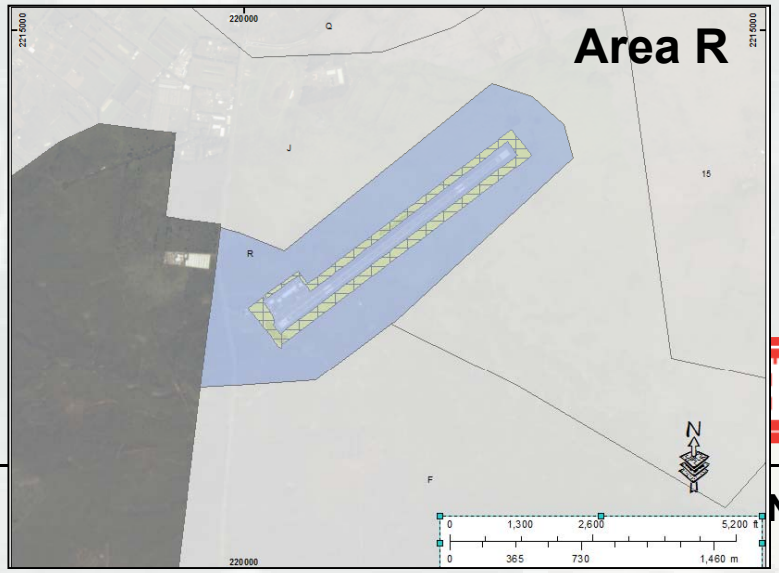
- 1,349.7 acres cleared
- 235.3 acres not investigated
  - Lack of ROE (35.5 acres)
  - Existing structures, golf course, thick vegetation, proximity to roads (177.7 acres)
- 71 MEC items/40,000 lbs MD recovered
  - mortars (60mm [HE and illumination] to 81mm (HE and WP)], projectiles (75 mm [HE] to 37mm [HE and AP]), Japanese 37mm projectile, 3-in. projectile, 4.5-in. barrage rocket, 2.36-in. rockets, MKII Hand grenades, rifle grenades, smoke grenades and fuzes (MK137, M58, and M54 projectile fuzes)

AREAS R & N

2017 Remedial Action

- Exception areas from NTCRA's
- N: 235.3 acres
- R: 43 acres
- Clean-up effort July – September 2018

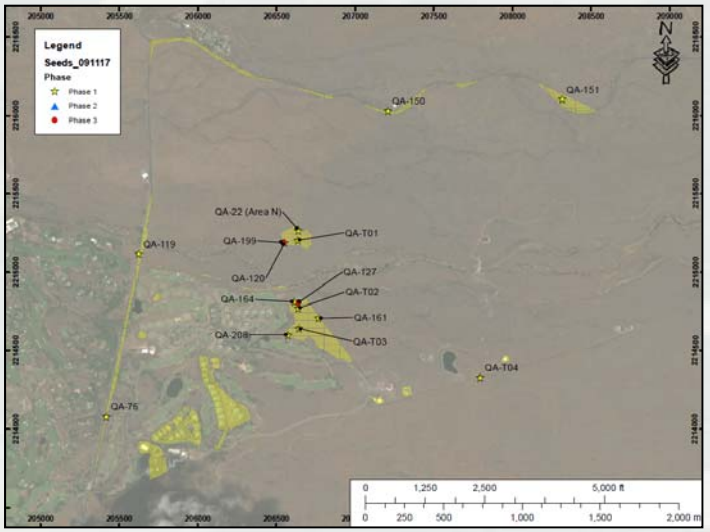


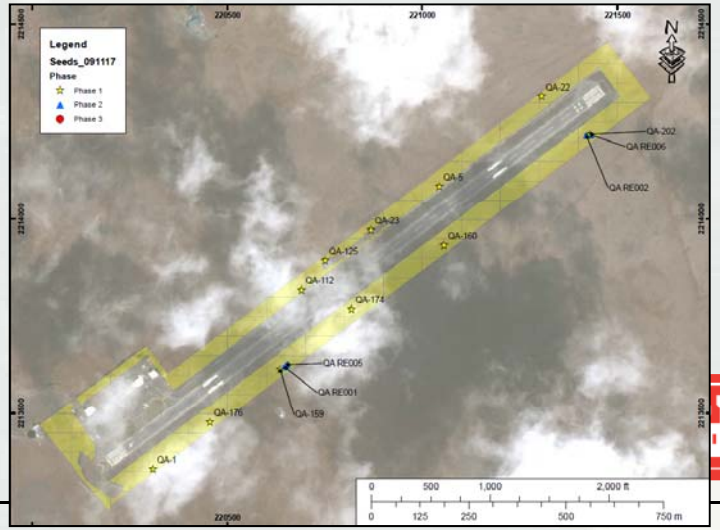


AREAS R & N

Seeding

- Initially placed 24 seeds
  - 20 small ISOs
  - 4 end caps (simulants for fuzes but not used in QA tracking)
  - Depths 4 – 9 in
- Initial round
  - 9 seeds missed
- Follow-up
  - Grids reseeded with 1 to 6 additional seeds
  - If seed missed during re-sweep, grid was re-seeded and swept again





AREAS R & N

QA Seeds

- Below thick vegetation
- Behind obstructions
- Topographic lows
- Site boundaries
- Near surface metal objects (tin cans, etc)

AREAS R & N

Problems encountered

- Seed location deemed unsafe (although could reach from flat ground)
- Two ISO's were smaller than standard
  - Contractor tried to negate whole seeding program
  - Except both were found on first sweep (4" burial)
- Special case areas defined without notifying QA
- Contractor claimed they may have moved seed while moving debris piles
  - QA found seed at GPS location
- 1 seed could not be relocated (assume contractor pulled and lost track)

AREAS R & N

Issues/points of contention (Lessons learned)

- QASP prepared during project
- Failure criteria not clearly spelled out
  - 1.5 x 1.5” on surface
  - 37 mm at 1’
  - ~75 mm at 3’
- Clearly define lot size (typically more than 1 grid)
- Penalty for failing a lot
- Miscommunication of accepted/failed grids
  - Grid release must me cleared by team
  - Rotating OESS, incoming OESS releases grids in safety meeting without checking with QA geophysicist or outgoing OESS
- Obstructions affecting swing height
  - Grass, topography, dirt piles, etc.
- QC seed tracking
  - QA requested seed data – took 2 weeks for contractor to provide
  - Assume GIS was not being maintained

QA-164

- Placed 3-4 ft within site boundary
- QC personnel told OESS that being that close to boundary it would not have been covered

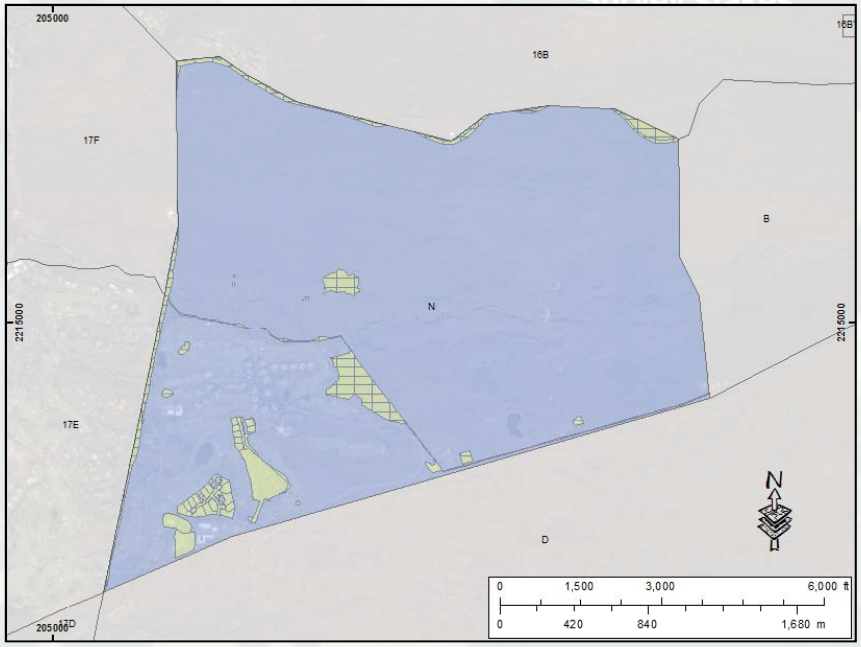
AREAS R & N

Area R:

- **Acceptance based on increased QA grid sweeps**

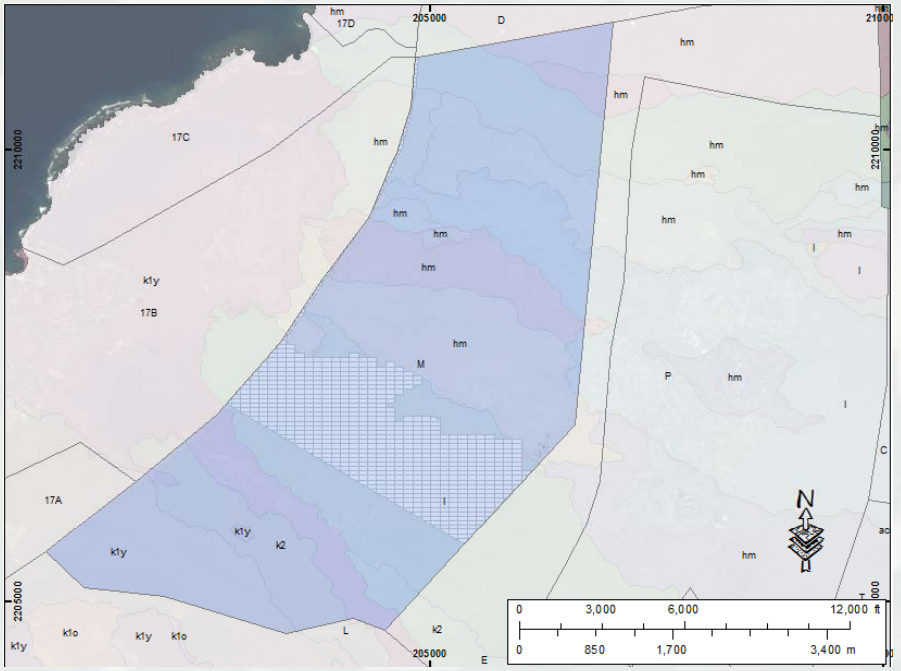
Area N:

- **Surveyed areas accepted following enhanced QA grid sweeps**
- **ROE's around housing still outstanding**
- **Areas adjacent to major roads excluded again due to impacts of having to close roads for extended periods of time**



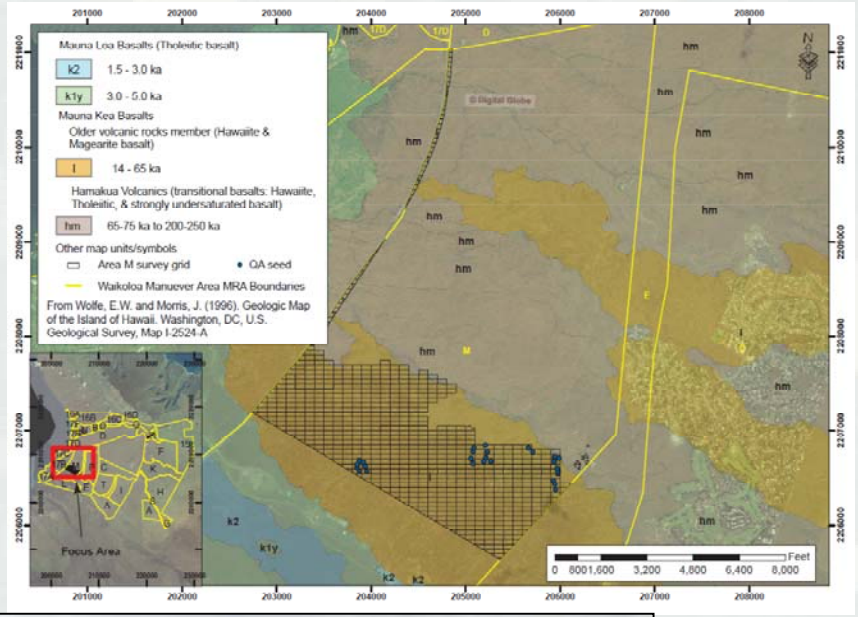
AREAS M

- MRS 5,74 acres
- Artillery training
  - Adjacent to Lalamilo Firing Range (Area D) that was used intensely till 1 Dec 1953
- Previous clean-up
- EE/CA
  - 5 items found w/in M; 155mm & 105mm HE projectiles
- Removal Actions (2010 – 2011)
  - 105 MEC items & 58,130 lbs MD (0-12-in)
- Munitions recovered
  - 155mm HE Projectiles; 105mm HE Projectiles; 75mm (APC-T & HE); 60mm Illumination Mortar M83; 37mm projectiles; various fuzes
- 850 acres deemed exemption area due to rough topography



AREAS M

- Current effort restricted to 1 lava flow
- Extremely rough topography
- Generally sparsely vegetated
- Generally poor soil development



AREAS M

PROGRAM MODIFICATIONS

- POH recently hired 2 FTE OESSs.
- New QASP has been developed and implemented with support of MMDC with clear QA/QC roles and responsibilities defined.
- Established QMP and QA seeding program by lots and a standardized lot acceptance process.
- QA seed by lots and not grids.
- Seed to the requirements in EM 200-1-15 for type and frequency of seeds.
- Seed for hard to detect items (95%-100% depth of detection).

6'-3" OESS Josh Byrd

AREAS M

- **QA seeding**
  - **Minimum of 1 QA seed per grid block**
  - **Depth 1 – 13”**
    - **Soil**
    - **Cracks**
    - **Under loose rocks**

AREAS M

Problems encountered

- Few QA seeds missed
- RCA to prevent recurrence
- QA documented improper placement of QC seeds
  - Contractor self-imposed stand-down (nearly 3-weeks)
  - Performed RCA
    - Initially prepared memo with their understanding and recommendations
    - Misunderstood that seed depth was measured from ground
    - Detection seeds found by QA at ground surface
    - RCA claimed human error, lack of QC oversight, and improper training
  - Increased training
  - Increased QC oversight
  - Production rate dropped significantly
  - QC failures increased
  - Product to government improved
    - Onsite OESS' very happy with changes in contractor performance