

Kahului Airport Runway Safety Area Improvements

Presented To: Western-Pacific Region 4th Annual
Airports Conference

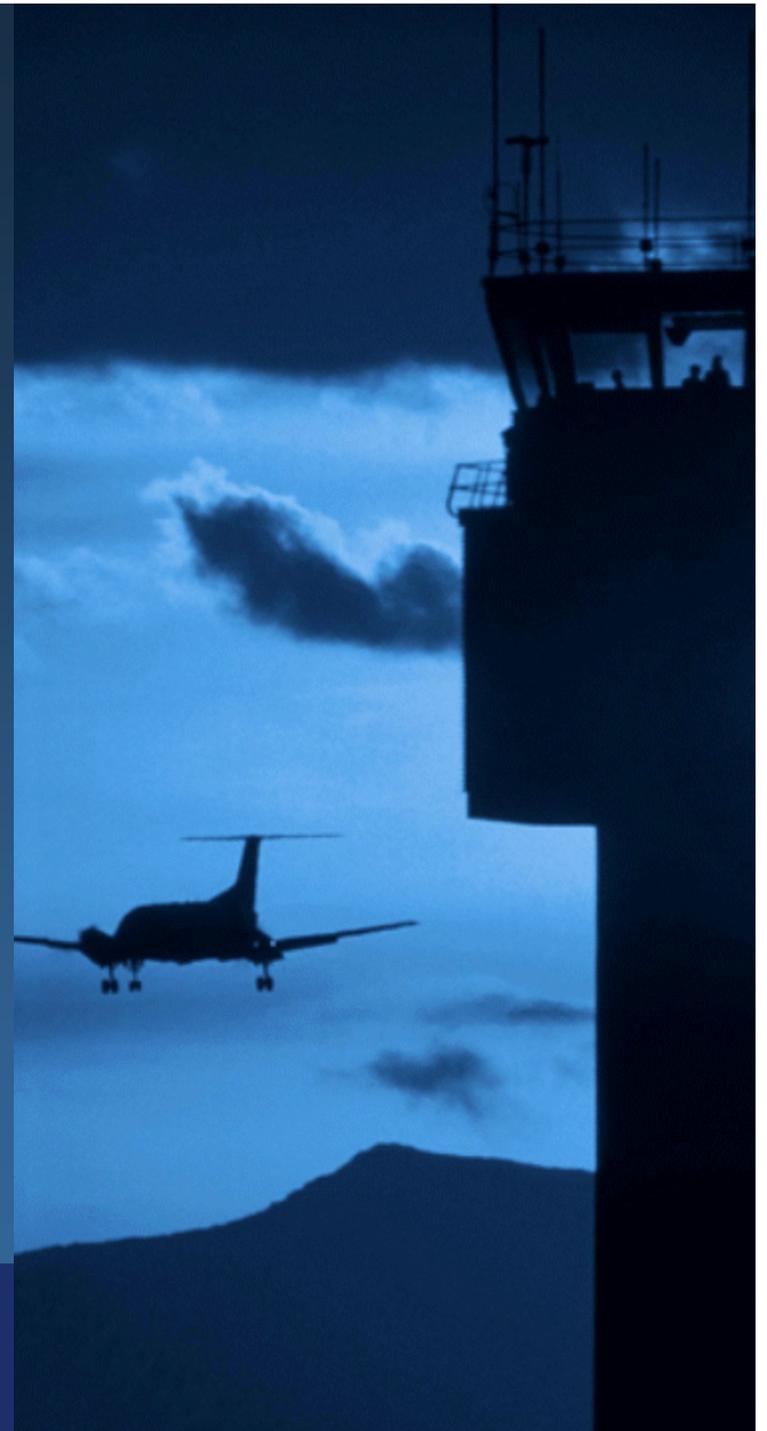
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Date: May 7, 2008

Kahului Airport RSA Improvements

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RSA History:

- In 1988, FAA established safety standards for airport RSAs to improve safety by providing an added layer of protection for aircraft operations.
- In 2003, FAA stated it had a plan for all major airports to meet its standards by 2007.
- Two years later, FAA pushed this date to 2015. To prevent the FAA from further delaying these important safety improvements, Congress passed the Lautenberg law in 2005.
- UNITED STATES PUBLIC LAWS; 109th Congress - First Session; Convening January 7, 2005. **PL 109-115 (HR 3058) dated November 30, 2005.**
- : *Provided further*, That **not later than December 31, 2015**, the owner or operator of an airport certificated under 49 U.S.C. 44706 shall improve the airport's runway safety areas to **comply with the Federal Aviation Administration design standards required by 14 CFR part 139**: *Provided further*, That the Federal Aviation Administration shall report annually to the Congress on the agency's progress toward improving the runway safety areas at 49 U.S.C. 44706 airports.



RSA History:

- FAA Order 5200.8, Runway Safety Area Program, establishes responsibilities for evaluating and improving RSA's
 - **in accordance with 14 CFR part 139, Certification and Operations: Land Airports Serving Certain Air Carriers (part 139); and**
 - **for all federally funded airports.**
- The order requires the FAA to evaluate RSAs continually and to implement all practicable improvements, even when a full RSA is not possible.
- In September 1999, FAA initiated an effort to conduct a physical inspection of the standard runway safety area for all commercial service runways at airports certificated under part 139.



RSA History:

- The objectives of this effort are to:
 - **1. Document all objects and natural features in the standard RSA that could pose increased risk for aircraft that leave the runway surface.**
 - **2. Develop a preliminary plan for improving safety areas to the maximum extent practicable.**
 - **3. Identify incremental improvements that would reduce the hazard to aircraft even when a completely standard RSA is not practicable.**
- Airports regional offices will collect and maintain RSA data at all federally obligated airports and all airports certificated under part 139.
- Regional offices will use this information for analyzing and determining the practicability of improving RSA's from the FAA perspective as required by the order.
- Regional offices will develop and maintain an RSA database outlining completion goals for the non-standard runway safety areas. These completion goals are dates that have been coordinated with each sponsor, tracked by each region and monitored by FAA Headquarters.



Program Requirements

- The Runway Safety Area Program requires
 - **an evaluation of the existing RSA with respect to the standard,**
 - **consideration of various alternatives for improving non-standard RSAs and**
 - **a determination of the best alternative for enhancing safety.**
- Standards for the RSA are contained in Advisory Circular 150/5300-13, *Airport Design*.



Alternatives For Enhancement:

- Alternatives might involve a combination of actions such as
 - **object removal,**
 - **grading,**
 - **reduction of runway length,**
 - **realignment,**
 - **use of declared distances**
 - **land acquisition**
 - **installation of an engineered material arresting system (EMAS).**
- Implementation of the actual improvements requires a detailed study of engineering, cost, and environmental factors. It also involves other parties such as airport operators, surrounding communities, and airlines.



Alternatives:

- These initiatives will:
 - **Improve coordination to prevent future installations or modifications from violating RSA standards before the design plans are finalized.**
 - **Insure that FAA NAVAID facility sites are properly maintained and that the modification or replacement of NAVAID facilities does not compromise frangibility. Facilities that are classified as frangible or frangible to 3 inches above grade must remain so after modification or replacement.**
 - **Provide NAS managers with the RSAI database and seize opportunities to make practicable improvements in connection with regularly scheduled maintenance and improvement projects. These improvements will be documented in the RSAI database.**



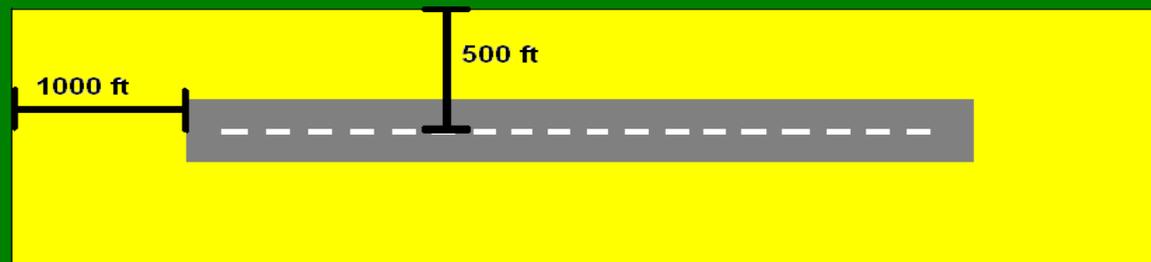
Nav aids

- Examine all high-mass NAVAID objects and determine the best course of action to mitigate the potential hazard with respect to the practicability determination. Use of the RSA factor-rating tool should be used as a part of the examination process.
- The FAA NAVAIDS Criteria Working Group will initiate this improvement by reviewing FAA NAVAID siting orders and installation details to ensure they are consistent the RSA requirements.



Commercial Service Airports

Runway Safety Area (RSA) Example



National RSA Overview

- Nationally, 566 part 139 airports and 1,024 runways were inspected
- RSA's which were at least 90% of the standard dimension are considered to have met standards
 - **55% met RSA standards**
 - **31% Did not meet RSA standards, but were feasible to improve**
 - **14% Did not meet standards and could not be improved to meet the standards**



AWP RSA Overview

- In the Western-Pacific Region
 - **62 part 139 airports and 105 runways were inspected**
- Of the 105 inspected runways
 - **47 met the RSA standards**
 - **49 did not meet standards, but were feasible to improve to meet the standards**
 - **9 did not meet standards (note, three of these can be improved, but will not meet the full RSA standard).**



AWP RSA Overview

Where We Are Currently:

- 31 RSA Projects remain uncompleted, and are scheduled for completion between 2008 and 2015.
- We have an obligation to FAA HQ to complete a specific number of RSA's each fiscal year. These numbers are tracked as a goal in our Performance Plan.



Kahului Airport RSA Funding

- **AIP OGG-33 \$1,000,000 Design Fees for Rwy 2/20 and 5/23 RSA's in 2004.**
- **AIP OGG-43 \$702,093 Construction Management Services in 2006.**
- **PFC Application No. 1 included:**
 - **Perimeter Road \$3,900,000**
 - **RSA \$6,000,000**



An aerial photograph of Kahului Airport. The runway is the central feature, running horizontally across the middle. To the left of the runway is a large parking lot and some terminal buildings. To the right is a taxiway and another parking area. The airport is surrounded by greenery and a coastline with blue water is visible in the upper right corner.

KAHULUI AIRPORT RUNWAY SAFETY AREA (RSA) AND PERIMETER ROAD

**State Project No. AM1023-13
AIP Project No. 3-15-0006-33**

SCOPE OF WORK

Merge Two Development Projects:

- 1) **Install Perimeter Road**
 - Includes vegetation removal within airfield and 15' swath outside fence line west of Runway 5-23

- 2) **Remove Runway Safety Area (RSA) Hazards**
 - Drainage obstructions

Related Projects:

- 1) **Improve and Enhance Archeological Site**
 - Includes vegetation removal

- 2) **Excavate Hillside**
 - To use as fill for low lying areas in the RSA



RW 5-23 36" BOX CULVERT OUTLET



ARCHEOLOGICAL SITE



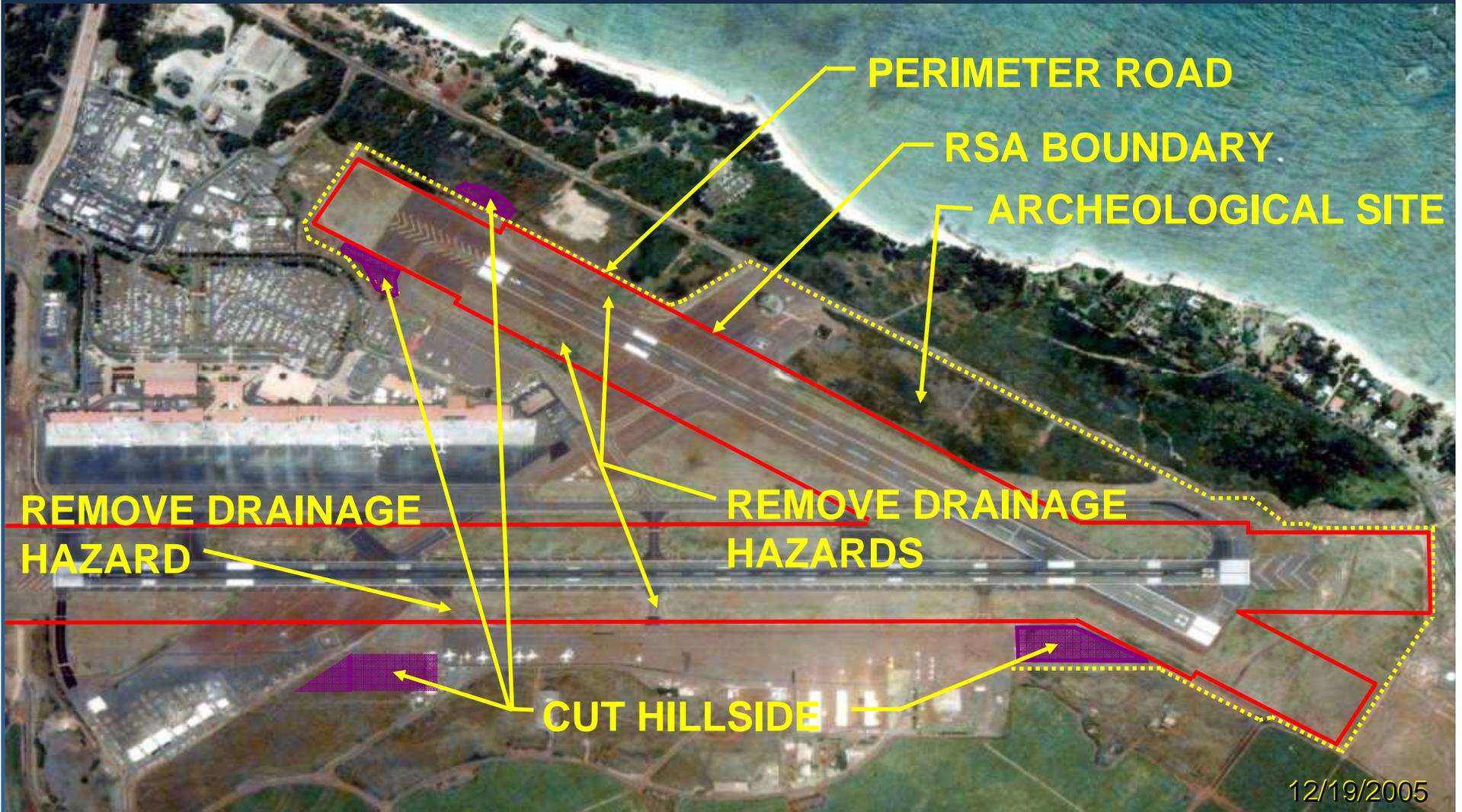
PERIMETER ROAD-3



RSA HAZARD 2



SCOPE OF WORK LOCATIONS



INDIVIDUAL PROJECTS

- **Perimeter Road- Construct 20' wide, paved perimeter road for light pick-up truck traffic, includes vegetation removal**



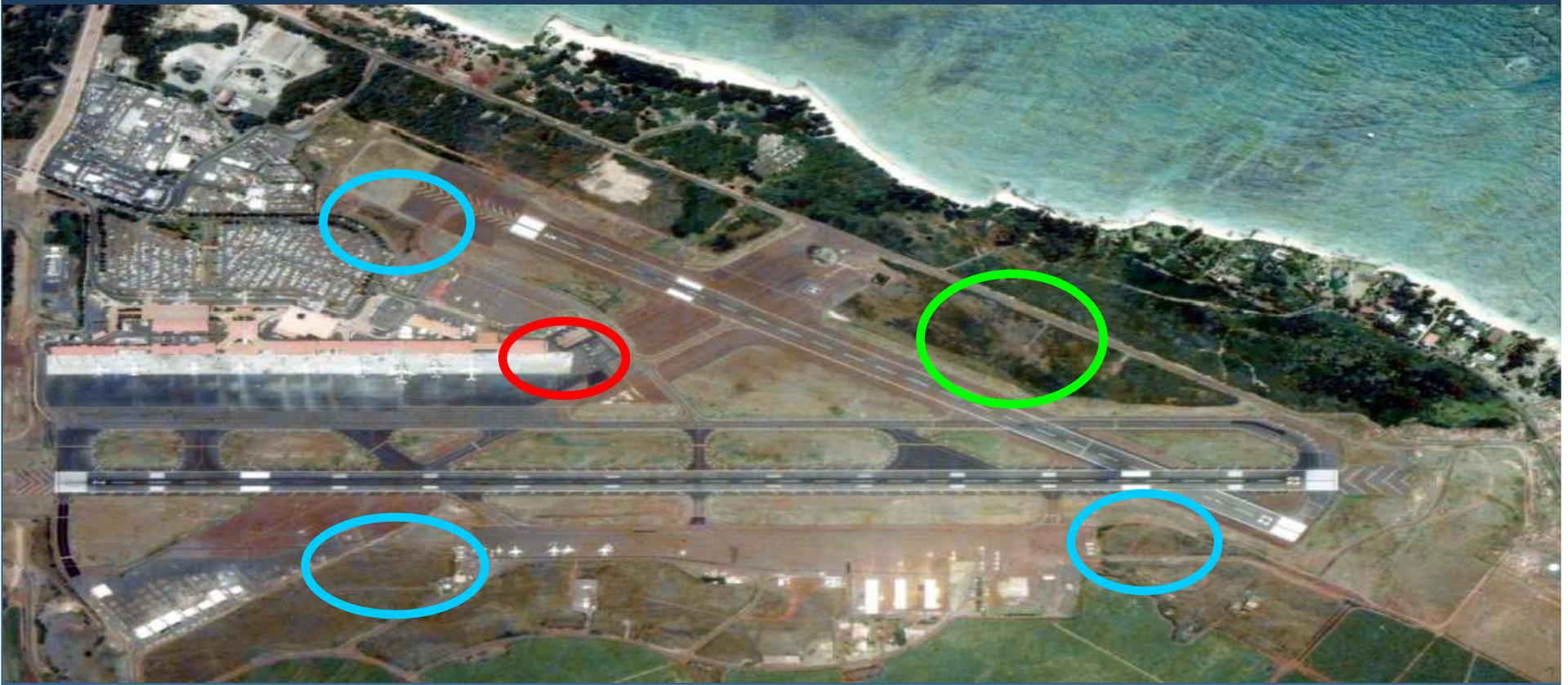
INDIVIDUAL PROJECTS

- **RSA Hazards: Drainage**

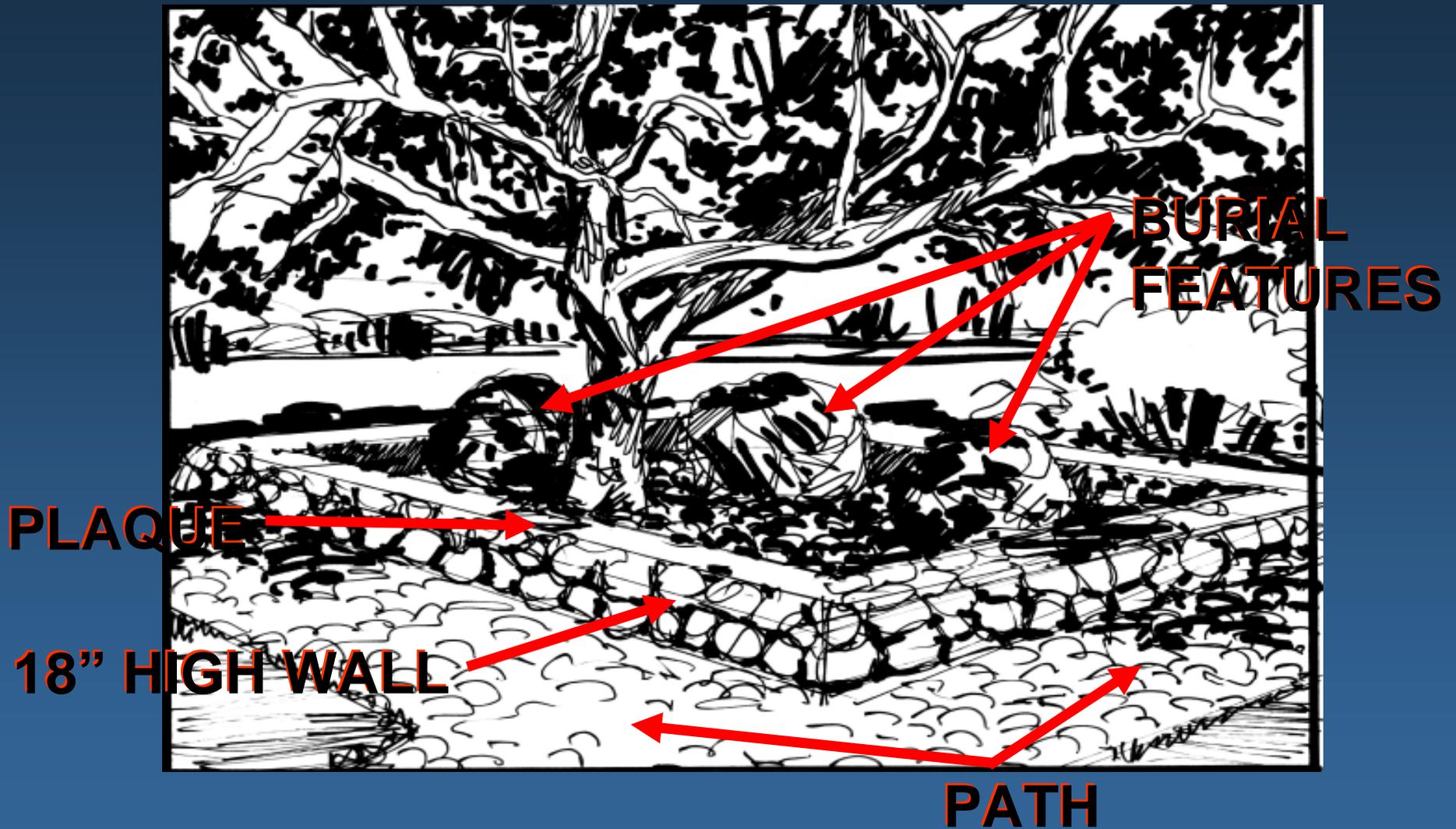


RELATED PROJECTS

- Archeological Site Improvements
- Ground Services Equipment Building Removal
- Hillside Excavations



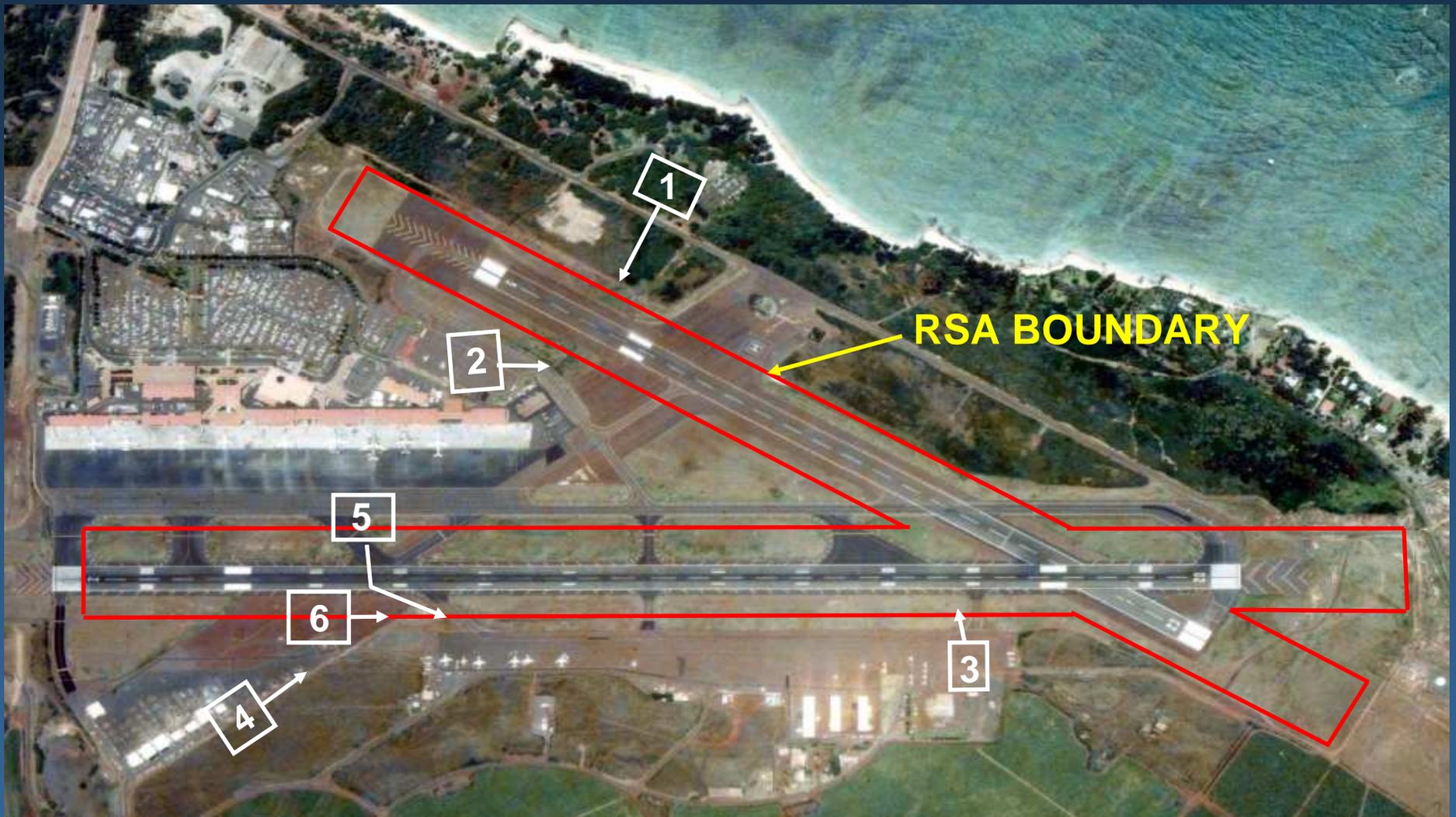
ENHANCE ARCHEOLOGICAL SITE



PERIMETER ROAD



RSA HAZARDS



RELATED PROJECTS



CONSTRUCTION SCHEDULE/COST

Phase I:

- **Bid Date: January 2006**
- **Award Date: March 2006**
- **Construction Start Date: June 2006**
- **Construction Completion Date: July 2007**
- **Estimated Construction Cost: \$4.4M**
 - Pending contractor's claim



CONSTRUCTION SCHEDULE/COST

Phase II:

- **Estimated Bid Date: June 2008**
- **Estimated Award Date: September 2008**
- **Estimated Construction Start Date: November 2008**
- **Estimated Construction Completed Date: September 2009**
- **Estimated Construction Cost: \$3.6M**
 - **Plus four additive bid items at \$3.5M**



CONSTRUCTION SCHEDULE/COST

Total Costs

- Phase I = \$4.4M
- Phase II = \$3.6M
- Phase II Add. Bid Items = \$3.5M
- Total Cost Both Phases = \$11.5M



STATUS

- **Environmental Assessment (EA) and Special Management Area (SMA) Permit**
 - Early Consultation Request
 - EA Completion Date: March 2006
 - SMA Completion Date: March 2006
- **Archeological Survey**
 - Completion Date: March 2006



STATUS, Continued

- **Project Design**
 - **Hydrological Analysis: Complete**
 - **Hydrological/Hydraulic Report**
 - **Design: In Progress**
 - **60% Submittal: Dec. 15, 2005**
 - **90% Submittal: Dec. 29, 2005**
 - **100% Submittal: Jan. 12, 2006**
 - **Archeological Enhancement: Completed**



Lesson's Learned

- **High construction bids**
- **Geotechnical Investigation Earthwork – Change Orders**
- **Environmental Issues**
- **FWS – Potential endangered species habitat**
- **SHPO – Ancient Hawaiian burial and gathering sites**
- **ACoE – Wetlands**
- **Maui County Planning Department SMA Permit**



THANK YOU.



PERIMETER ROAD-1



PERIMETER ROAD-1



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May 7, 2008



Federal Aviation
Administration

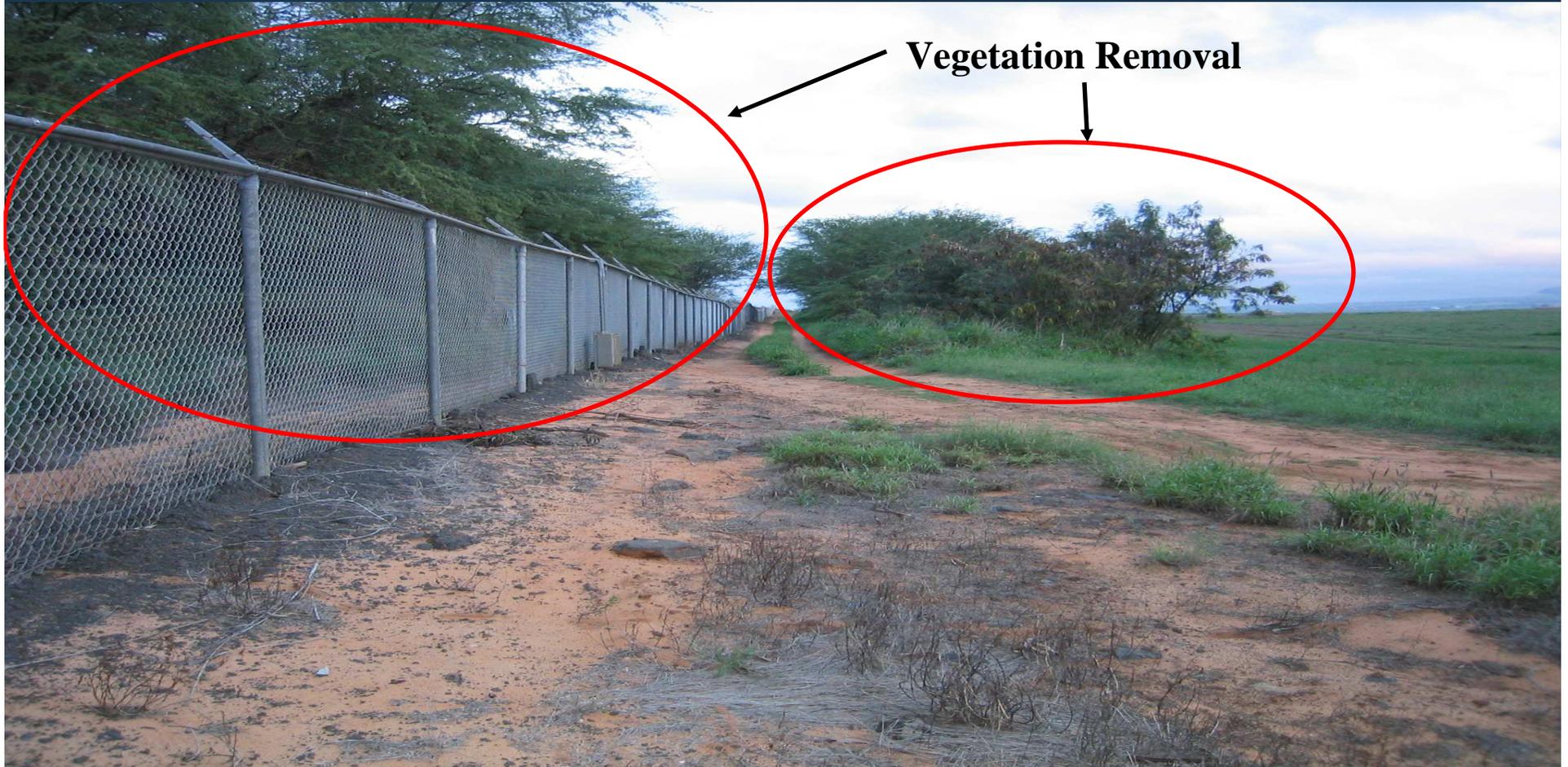
PERIMETER ROAD-2



PERIMETER ROAD-2



PERIMETER ROAD-3



PERIMETER ROAD-4



PERIMETER ROAD-5



PERIMETER ROAD-5



PERIMETER ROAD-6



PERIMETER ROAD-7



PERIMETER ROAD-7



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May 7, 2008



Federal Aviation
Administration

PERIMETER ROAD-8



PERIMETER ROAD-9



PERIMETER ROAD-10



PERIMETER ROAD-11



PERIMETER ROAD-11



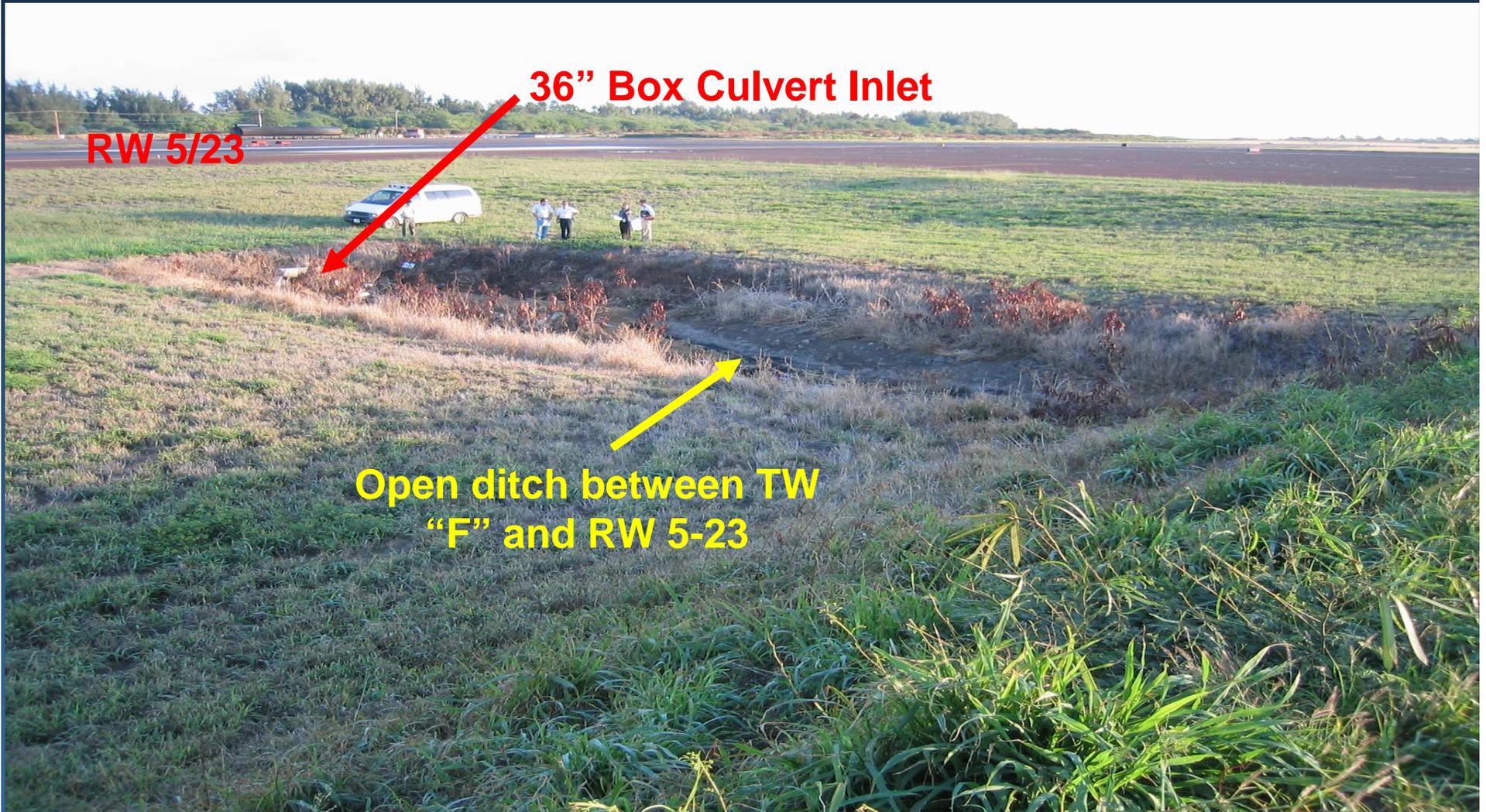
PERIMETER ROAD-12



RSA HAZARD 1



RSA HAZARD 2



RSA HAZARD 3



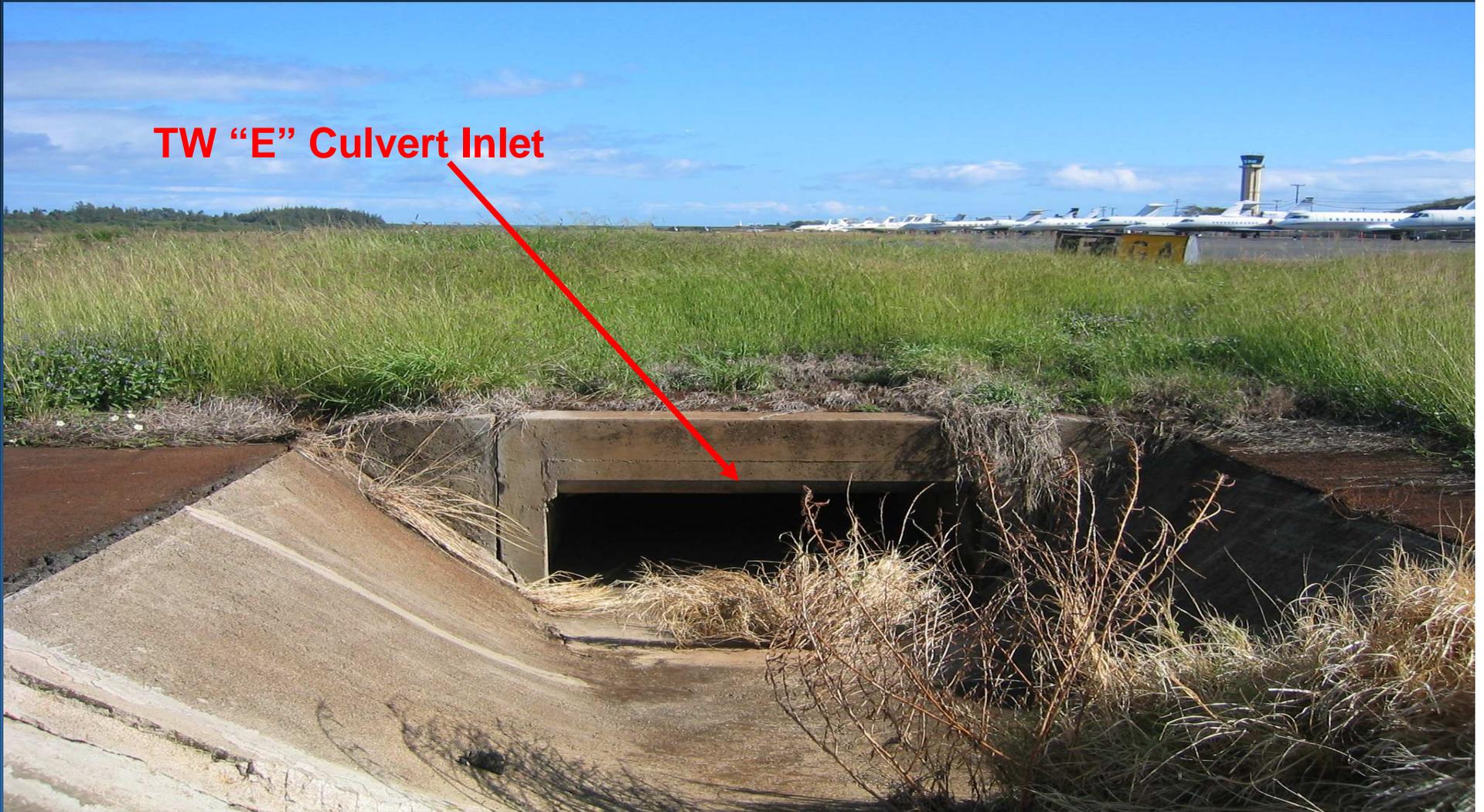
RSA HAZARD 4



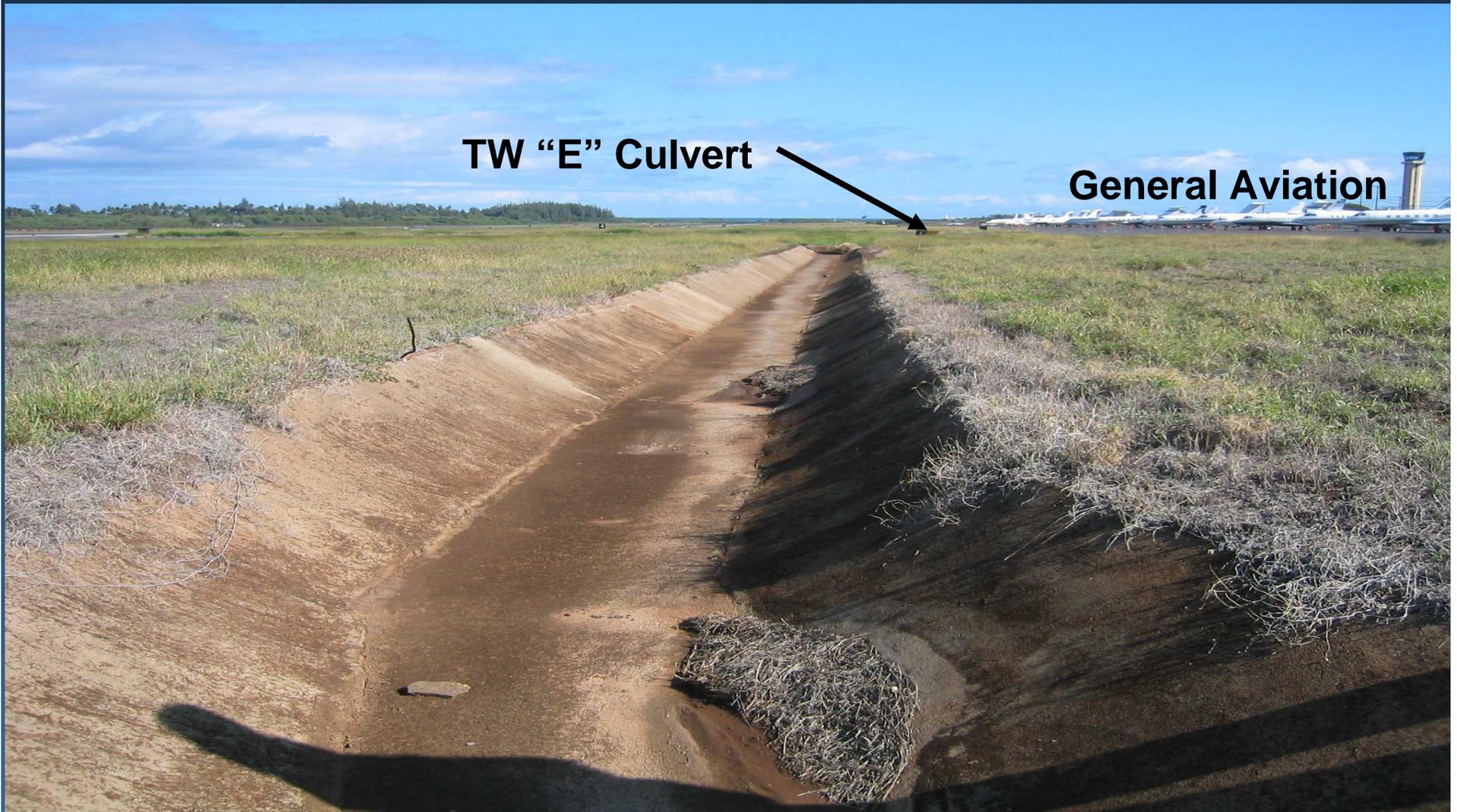
CRM Channel Down Stream of TW "F" Culvert Crossing

RSA HAZARD 5

TW "E" Culvert Inlet



RSA HAZARD 6



HILLSIDE EXCAVATION

- Cut existing “mound” near southeast end of Runway 5-23 down to RW 5-23 and TW “F” elevation. Transport cut material to fill low areas



HILLSIDE EXCAVATION



HILLSIDE EXCAVATION

- Cut existing “mound” near southeast end of Runway 2-20 down to existing elevation. Transport cut material across airfield to fill low areas



GROUND SERVICES EQUIPMENT BUILDING REMOVAL



ARCHEOLOGICAL SITES



- Sites
- Right of Kiawe tree off Perimeter Road



Perimeter Road

