Revised Draft

ENVIRONMENTAL IMPACT STATEMENT

FOR DIVERT ACTIVITIES AND EXERCISES, COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

VOLUME II: APPENDICES

Headquarters, Pacific Air Forces
Joint Base Pearl Harbor-Hickam, Hawai'i

OCTOBER 2015

REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT
DIVERT ACTIVITIES AND EXERCISES
COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS (CNMI)

VOLUME II: APPENDICES

TABLE OF CONTENTS

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APPENDIX A

Cooperating Agency Requests and Acceptance Letters

Cooperating Agency Request Letter to the Department of the Navy and U.S. Marine Corps
September 20, 2011

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

20 SEP 2011

MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF THE NAVY
(ENVIRONMENT)

FROM: SAF/IEE

SUBJECT: Cooperating Agency (CA) Request for the Proposed U.S. Air Force Environmental Impact Statement (EIS) for Divert Activities and Exercises, Commonwealth of the Northern Mariana Islands

The Air Force requests Navy and Marine Corps formal participation in preparation of its Divert Activities and Exercises, Commonwealth of the Northern Mariana Islands EIS as prescribed in the President's Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations, 40 CFR §1501.6, Cooperating agencies.

As a cooperating agency, the Air Force requests that you participate in various portions of the EIS development as may be required. Specifically, the Air Force requests your support as a Cooperating Agency by:

(a) Participating in scoping, review, and hearing processes;
(b) Making staff support available to enhance interdisciplinary analysis and review;
(c) Assuming responsibility, upon request, for developing information and preparing analyses on topics for which the Navy and/or Marine Corps has special expertise; and,
(d) Responding, in writing, to this request.

Air Force staff will contact Navy and Marine Corps staffs to address specific details of this cooperating agency relationship. To avoid unnecessary delays in the NEPA process, the Air Force must have timely support from cooperating agencies. In turn, the Air Force will ensure it provides the necessary information and related materials in a timely fashion to enable your agency to complete its review and respond promptly. Should you or your staff have questions regarding this memo, our points of contact are Mr. Jack Bush, Bases and Units (AF/A7C1), (703) 614-0237, email jack.bush@pentagon.af.mil; and Mr Les Reed, Office of the Deputy General Counsel (Environment & Installations), (703) 614-8071, email les.reed@pentagon.af.mil.

TIMOTHY K. BRIDGES
Deputy Assistant Secretary
(Environment, Safety & Occupational Health)

cc:
SAF/IEI/GCN
HQ AF/A4/7/8
HQMC I&L & DC/A
HQ PACAF/A5/A7

Cooperating Agency Request Letter to Department of Interior, Office of Insular Affairs
October 21, 2011

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

SAF/IEE
1665 Air Force Pentagon
Washington, DC 20330-1665

21 OCT 2011

Mr. Anthony Babauta
Assistant Secretary
U.S. Department of the Interior, Office of Insular Affairs
1849 C Street, NW
Washington, DC 20240

Dear Mr. Babauta:

The Air Force requests your formal participation in the preparation of an Environmental Impact Statement (EIS) for the Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands as prescribed in the President's Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations, 40 CFR § 1501.6 *Cooperating Agencies*.

As a cooperating agency, the Air Force requests your office participate in various portions of the EIS development as may be required. Specifically the Air Force asks for your support as a Cooperating Agency by:

a. Responding, in writing, to this request;
b. Participating in the scoping process;
c. Assuming responsibility, upon request by the Air Force, for developing information and preparing analyses on issues for which you have special expertise; and,
d. Making staff available for interdisciplinary reviews.

To avoid unnecessary delays in the NEPA process, the Air Force must have timely support from cooperating agencies. In turn, the Air Force will ensure it provides the necessary information and related materials in a timely fashion to enable your agency to complete its review and respond promptly. Should you or your staff have any questions regarding this letter, our point of contact is Mr. Mark Petersen, (808) 449-1078, Mark.Petersen@hickam.af.mil.

Sincerely,

TIMOTHY K. BRIDGES
Deputy Assistant Secretary of the Air Force
(Environment, Safety, & Occupational Health)

cc:
SAF/IEI
SAF/GCN
HQ USAF/A7C
HQ USAF/A3O
HQ PACAF/A7PI
ALCOM/J42

Cooperating Agency Request Letter to Department of Interior, U.S. Fish and Wildlife Service
October 21, 2011

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

21 OCT 2011

SAF/IEE
1665 Air Force Pentagon
Washington, DC 20330-1665

Mr. Daniel M. Ashe
Director
U.S. Department of the Interior, U.S. Fish and Wildlife Service
1849 C Street, NW
Washington, DC 20240

Dear Mr. Ashe:

The Air Force requests your formal participation in the preparation of an Environmental Impact Statement (EIS) for the Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands as prescribed in the President's Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations, 40 CFR § 1501.6 *Cooperating Agencies*.

As a cooperating agency, the Air Force requests your office participate in various portions of the EIS development as may be required. Specifically, the Air Force asks for your support as a Cooperating Agency by:

a. Responding, in writing, to this request;
b. Participating in the scoping process;
c. Assuming responsibility, upon request by the Air Force, for developing information and preparing analyses on issues for which you have special expertise; and,
d. Making staff available for interdisciplinary reviews.

To avoid unnecessary delays in the NEPA process, the Air Force must have timely support from cooperating agencies. In turn, the Air Force will ensure it provides the necessary information and related materials in a timely fashion to enable your agency to complete its review and respond promptly. Should you or your staff have any questions regarding this letter, our point of contact is Mr. Mark Petersen, (808) 449-1078, Mark.Petersen@hickam.af.mil.

Sincerely,

TIMOTHY K. BRIDGES
Deputy Assistant Secretary of the Air Force
(Environment, Safety, & Occupational Health)

cc:
SAF/IEI
SAF/GCN
HQ USAF/A7C
HQ USAF/A3O
HQ PACAF/A7PI
ALCOM/J42

Cooperating Agency Request Letter to Federal Aviation Administration
October 21, 2011

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

SAF/IEE
1665 Air Force Pentagon
Washington, DC 20330-1665

21 OCT 2011

Ms. Elizabeth L. Ray
Director, Airspace Services
Mission Support Services
Federal Aviation Administration
800 Independence Ave., SW, Suite 400 East
Washington, DC 20591

Dear Ms. Ray:

The Air Force requests your formal participation in the preparation of an Environmental Impact Statement (EIS) for the Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands as prescribed in the President's Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations, 40 CFR § 1501.6 *Cooperating Agencies*.

As a cooperating agency, the Air Force requests your office participate in various portions of the EIS development as may be required. Specifically, the Air Force asks for your support as a Cooperating Agency by:

a. Responding, in writing, to this request;
b. Participating in the scoping process;
c. Assuming responsibility, upon request by the Air Force, for developing information and preparing analyses on issues for which you have special expertise; and,
d. Making staff available for interdisciplinary reviews;

To avoid unnecessary delays in the NEPA process, the Air Force must have timely support from cooperating agencies. In turn, the Air Force will ensure it provides the necessary information and related materials in a timely fashion to enable your agency to complete its review and respond promptly. Should you or your staff have any questions regarding this letter, our point of contact is Mr. Mark Petersen (808) 449-1078, Mark.Petersen@hickam.af.mil.

Sincerely,

TIMOTHY K. BRIDGES
Deputy Assistant Secretary of the Air Force
(Environment, Safety, & Occupational Health)

cc:
SAF/IEI
SAF/GCN
HQ USAF/A7C
HQ USAF/A3O
HQ PACAF/A7PI
ALCOM/J42

Cooperating Agency Response Letter from the Department of the Navy
November 4, 2011

DEPARTMENT OF THE NAVY

OFFICE OF THE ASSISTANT SECRETARY
(ENERGY, INSTALLATIONS & ENVIRONMENT)
1000 NAVY PENTAGON
WASHINGTON DC 20350-1000

NOV - 4 2011

MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE (ENVIRONMENT, SAFETY AND OCCUPATIONAL HEALTH)

SUBJECT: Cooperating Agency Request for the Proposed U.S. Air Force Environmental Impact Statement for Divert Activities and Exercises, Commonwealth of the Northern Mariana Islands

The Department of the Navy agrees to participate as a Cooperating Agency in the preparation of the U.S. Air Force Divert Activities and Exercises, Commonwealth of the Northern Mariana Islands Environmental Impact Statement (EIS). As a Cooperating Agency the Department of the Navy agrees to:

- Participate in scoping, review and hearing processes;
- Make staff support available to enhance interdisciplinary analysis and reviews;
- Upon request, develop information and prepare analyses on topics for which the Navy and/or Marine Corps has special expertise.

The Navy and Marine Corps points of contact to support this cooperating agency relationship are: Ms. Sue Goodfellow, Ph.D., Head, Planning and Conservation Section, Headquarters, U.S. Marine Corps (GF/MCI-COM), (571) 256-2781, email: sue.goodfellow@usmc.mil and Mr. Neil Sheehan, Environmental Planning Program Manager, Commander Pacific Fleet, (808) 474-7836, email: neil.a.sheehan@navy.mil.

The Department of the Navy appreciates being afforded this opportunity to participate as a cooperating agency and looks forward to working closely with the Air Force on this important environmental planning effort.

Sincerely,

Donald R. Schregardus
Deputy Assistant Secretary of the Navy
(Environment)

Copy to:
OPNAV N45
ADC I&L/GF

Cooperating Agency Response Letter from the Federal Aviation Administration
November 15, 2011

U.S. Department
of Transportation
Federal Aviation
Administration

NOV 15 2011

Timothy K. Bridges
Deputy Assistant Secretary of the Air Force
(Environment, Safety, & Occupational Health)
US Department of the Air Force
SAF/IEE
1665 Air Force Pentagon
Washington, DC 20330-1665

Dear Mr. Bridges:

Thank you for your letter requesting the Federal Aviation Administration participate as a cooperating agency in the environmental impact statement (EIS) for the Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands.

The FAA is pleased to participate in the EIS process in accordance with the National Environmental Policy Act of 1969 as amended, and its implementing regulations. Since the proposal involves special use airspace (SUA), the FAA will cooperate following the guidelines described in the Memorandum of Understanding (MOU) between the FAA and the Department of Defense Concerning SUA Environmental Actions, dated October 4, 2005.

Modification of the SUA resides under the jurisdiction of the Western Service Center, Operations Support Group, Renton, WA. The Western Service Center will be the primary focal point for matters related to both airspace and environmental matters. Mr. John Warner is the Manager of the Operations Support Group. FAA Order 7400.2, Chapter 32 indicates the airspace and environmental processes should be conducted in tandem as much as possible; however, they are separate processes. Approval of either the aeronautical process or the environmental process does not automatically indicate approval of the entire proposal. I have enclosed Appendix 2, 3, and 4 of FAA Order 7400.2 for additional details.

A copy of the incoming correspondence and this response is being forwarded to Mr. Warner of the Western Service Center, Operations Support Group. Mr. Warner can be contacted at (425) 203-4500 for further processing of your proposal.

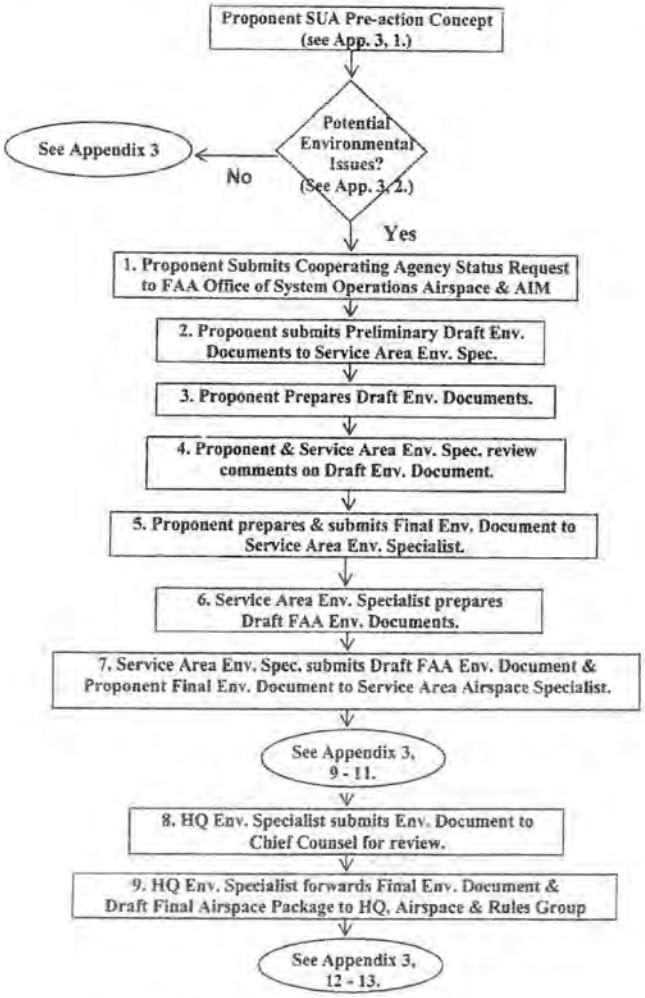
Sincerely,

Dennis E. Roberts
Director, Airspace Services
Air Traffic Organization

3 Enclosures

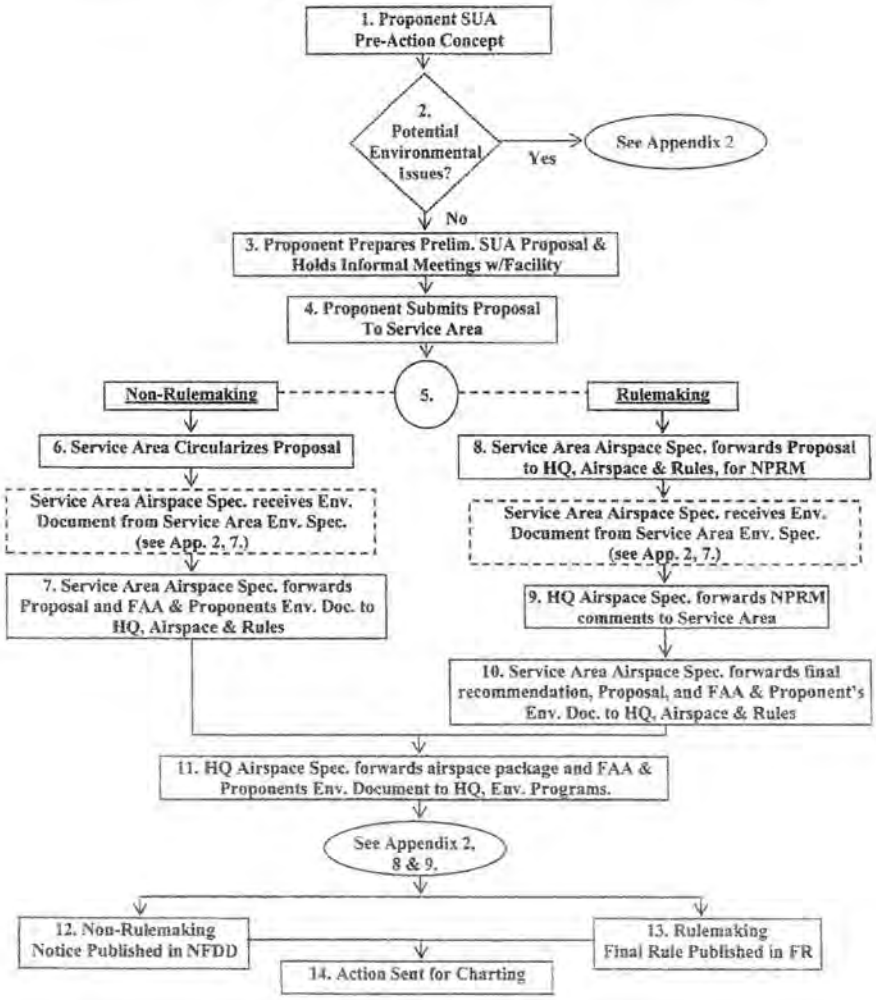
Appendix 2. Procedures For Processing SUA Actions Environmental Process Flow Chart

(This Chart is for use with Appendix 4 and the numbers correlate to the numbers in the Environmental column of that table.)



Appendix 3. Procedures For Processing SUA Actions Aeronautical Process Flow Chart

(This Appendix is for use with Appendix 4 and the numbers correlate to the numbers in the Aeronautical column of that table.)



Appendix 4. FAA Procedures for Processing SUA Actions Aeronautical and Environmental Summary Table

(The aeronautical and environmental processes may not always occur in parallel.)
(This Appendix is for use with Appendix 2 and Appendix 3, and the numbers correlate to numbers on those charts.)

(See note below.)

AERONAUTICAL	ENVIRONMENTAL
1. Proponent shall present to the Facility a Pre-draft concept (i.e., new/ revisions to SUA needed or required).	1. Proponent shall discuss with the Service Area, at the earliest time, the potential for environmental impacts associated with the proposal.
	2. If there is the potential for environmental impacts, Proponent shall make a request to the FAA for a Cooperating Agency (CA) status when Proponent decides to initiate the environmental process. Proponent shall forward the request to the Director of the System Operations Airspace and AIM. The Director will transmit the request to the Environmental Programs Group who prepares and forwards the response to Proponent. The Environmental Programs Group will send a courtesy copy of the response to the responsible Service Area. The Service Area environmental specialist works as the FAA point of contact throughout the process in development of any required environmental documentation.
	3. Proponent submits a Preliminary Draft EA or EIS to the Service Area environmental specialist. The Service Area environmental specialist shall provide comments, in consultation with the airspace specialist and the Environmental Programs Group, back to Proponent.

2. Proponent forwards the aeronautical proposal to the FAA Service Area for review and processing by the airspace specialist.	4. Proponent prepares a Draft EA or EIS with a 45-day public comment period. As the FAA CA point of contact, the Service Area environmental specialist reviews the associated draft environmental documentation to ensure that the Proponent addressed adequately all environmental concerns submitted on the Preliminary Draft. If required, the Service Area environmental specialist forwards the draft environmental documentation to the Environmental Programs Group for review and comment by the headquarters environmental specialist and the Office of Chief Counsel.
3. The Service Area airspace specialist, in accordance with this order, determines the type of airspace action(s) necessary, either Non-Rulemaking or Rulemaking. FAA Service Area and Proponent determine if informal Airspace Meetings are required.	
For Non-Rulemaking:	
4. The Service Area airspace specialist sends out a circularization with a 45-day public comment period. The Service Area airspace specialist reviews and prepares, in consultation with the Proponent, responses to the aeronautical comments from the study and circularization in accordance with Chapter 21 of this order.	5. The Proponent reviews comments received on their Draft EA/FONSI or EIS and prepares their responses to the comments, in consultation with the FAA and other cooperating agencies, if necessary, and in accordance with Chapter 32 of this order.
	6. Proponent prepares and submits their Final EA/FONSI or EIS/ROD to the Service Area environmental specialist.
	7. The Service Area environmental specialist prepares a Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD.
	8. The Service Area environmental specialist submits the Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD and the Proponent's Final EA/FONSI or EIS/ROD to the Service Area airspace specialist for inclusion with the airspace proposal package.
5. The Service Area airspace specialist then sends the completed package containing the aeronautical proposal, response to comments, Proponent's Final EA/FONSI, and the Draft FAA FONSI/ROD to the Headquarters Airspace and Rules Group with their recommendation.	

For Rulemaking:	
6. The Service Area airspace specialist sends the proposal to the Airspace and Rules Group who prepares a Notice of Proposed Rulemaking (NPRM). The Headquarters Airspace and Rules Group submits the NPRM for publication in the Federal Register with a 45-day comment period in accordance with Chapter 2 of this order.	
7. The Headquarters airspace specialist sends comments received on the NPRM to the Service Area airspace specialist for resolution.	
8. The Service Area airspace specialist then sends the completed package containing the response to comments, final service area recommendation, the proposal, Proponent's Final EA/FONSI or EIS/ROD, and the Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD to the Headquarters Airspace and Rules Group for preparation of the Final Rule.	
9. The Headquarters airspace specialist forwards the draft final rule package or draft non-rulemaking case summary (NRCS) with all supporting documentation to the Headquarters Environmental Programs Group for review (after all aeronautical comments have been resolved).	9. The Headquarters environmental specialist reviews the package for environmental technical accuracy; then submits the environmental documentation to the Office of the Chief Counsel, Airports and Environmental Law Division, for legal sufficiency review (having collaborated throughout the process).
	10. The Chief Counsel's environmental attorney's comments are incorporated into the final FAA environmental decision and signed by Headquarters Environmental Programs Group Manager. The package is then returned to the Headquarters Airspace and Rules Group.
10. For Non-rulemaking: The non-rulemaking action is published in the National Flight Data Digest. 11. For Rulemaking: The Final Rule is published in the Federal Register. The Final Rule will contain a reference to the decision rendered and location of documentation for the associated environmental process.	

Consult the following documents throughout the process for further information:

- Council on Environmental Quality Regulations for Implementing the National Environmental Policy Act (NEPA), 40 CFR Parts 1500-1508
- FAA Order 1050.1E, "Environmental Impacts: Policies and Procedures"
- FAA Order 7400.2, "Procedures for Handling Airspace Matters," Part 5
- FAA Order 7400.2, Chapter 32, "Environmental Matters" and the associated appendixes (for specific SUA environmental direction)

NOTE: The time periods below are for a non-controversial aeronautical proposal and its associated environmental process. The time periods are for FAA review/processing only. Times for proponent and/or environmental contract support processing must be added.

ENVIRONMENTAL: The estimated time of completion for EA processing is 12 to 18 months or, for EIS processing, 18 to 36 months.

AERONAUTICAL (Non-Rulemaking): A minimum 4 months is required from submission of the Formal Airspace Proposal by the Proponent to the Service Area through completion of the circularization process. Additionally, a minimum of 6 months is required from submission of the Formal Airspace Proposal by the Service Area to Headquarters through completion of the charting process.

AERONAUTICAL (Rulemaking): A minimum 6 weeks for Service Area processing, and a minimum of 9 months to complete rulemaking once the formal package is received at Headquarters.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2012-TA-0018

MAR 2 3 2012

Mr. Mark Petersen
HQ-PACAF, D-306/A7PI
25 E Street
JB Pearl Harbor-Hickam, HI 96853-5412

Subject: Request for the U.S. Fish and Wildlife Service (Service) to be a Cooperating Agency for the Divert Activities and Exercises, Guam and the Commonwealth of the Mariana Islands, Environmental Impact Statement (EIS).

Dear Mr. Peterson:

This is in response to the letter dated 21 October, 2011, from Mr. Timothy Bridges requesting the Service to be a cooperating agency on the preparation of the subject EIS. Current staffing and workload constraints preclude our ability to accept this request, thus, we respectfully decline cooperating agency status.

The Service recognizes the importance of our collaboration in the development of the EIS, and in the section 7 consultation required under the Endangered Species (ESA) of 1973 (16 U.S.C. 1531 *et seq.*), as amended. The Service will continue to provide technical assistance with regard to biological surveys and impact assessment aspects of draft EIS documents, and to respond to Air Force requests for information. The Service will continue to work collaboratively with the Air Force and assist you with ensuring that the best available scientific information is used in the EIS, and that impacts to ESA-listed species and other natural resources are avoided and minimized.

If you have any questions or concerns regarding this consultation, please contact Rachel Rounds, Fish and Wildlife Biologist (phone: 808-792-9400, email: rachel_rounds@fws.gov).

Sincerely,

Loyal Mehrhoff
Field Supervisor

TAKE PRIDE® IN AMERICA

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APPENDIX B

ESA Section 7 Consultation Supporting Documentation

Section 7 Consultation History

In addition to the letters and documents found in this appendix, interactions between the USAF and USFWS related to Section 7 consultation for actions on Saipan for this project took place over several dates between July 14, 2011 and July 1, 2013. The USAF submitted the Final Biological Assessment to the USFWS on September 10, 2012. The USAF received the Final Biological Opinion from the USFWS on July 1, 2013. On August 20, 2013, the USAF received a memo from the USFWS with three minor corrections to the Biological Opinion after signing.

Interactions between the USAF and USFWS related to Section 7 consultation for actions on Tinian for this project are ongoing. The USAF submitted a memo to the USFWS on July 8, 2015 requesting concurrence with the may affect, not likely to adversely affect determination for nesting green and hawksbill sea turtles on Tinian. The USAF is awaiting concurrence from USFWS with this determination.

Interactions between the USAF and NMFS related to Section 7 consultation for actions on Saipan and Tinian this project took place between October 3, 2012 and October 30, 2012. The USAF sent a letter to NMFS requesting formal concurrence with the not likely to adversely to affect determination for threatened and endangered marine species on October 3, 2012. The USAF received a letter from NMFS stating concurrence with the not likely to adversely affect determination for threatened and endangered marine species on October 30, 2012.

Request for Section 7 Early Consultation/Meeting
July 7, 2011

"Ingoglia, Mark Civ USAF PACAF A7AN/A7AN" <Mark.Ingoglia@hickam.af.mil>

07/07/2011 07:00 AM To
<Earl_Campbell@fws.gov>

cc
"Leong, Robert Civ USAF PACAF A7PI/A7PI" <Robert.Leong@hickam.af.mil>, "Duffy, Christopher G LtCol USAF PACAF A7/A7P" <christopher.duffy@hickam.af.mil>, "Grannis, William E Civ USAF PACAF A7/A7AV" <William.Grannis@hickam.af.mil>, "Hong, Julie Y CTR USAF PACAF A7PI/A7PI" <Julie.Hong@hickam.af.mil>
Subject
RE: FA8903-08-D-8771-0135: EIS for Divert Activities and Exercises USFW early consultation/meeting request

Aloha Earl,

The Air Force is preparing an EIS for the Pacific Air Force Divert Activities and Exercises in Guam and Commonwealth of the Northern Mariana Islands (CNMI) (hereinafter referred to as the "Divert EIS"). The purpose of the Divert EIS is to identify and assess the potential impacts associated with the proposed development and expansion of existing airfields in the Mariana Islands on U.S. territory in proximity of the Philippine Sea. As always, early and open discussions with your agency is the best way to accomplish this task in a timely manner.

The proposed airfield improvements would be designed to increase joint military exercises, humanitarian assistance, and disaster relief capability for northeast Asia. The USAF intends to meet its mission needs through expansion of an existing FAA-regulated airport which should minimize any potential effects on species of concern in the Marianas. The initial planning for this document is underway and I was hoping to meet with you and/or other members of the USFW staff to pre-brief you on this EIS. We anticipate pre-NOI notification of the Congressional delegations and the Governors of Guam and CNMI in mid-August and public scoping to be held on Guam and the three main CNMI islands in October 2011.

To assure we have touched base with your agency early (as always, it's an "aggressive schedule'), we are suggesting an initial meeting with the Air Force on or about 14 or 15 July 2011. I know you have been designated as the deputy for your office so I'm not sure you are the appropriate point of contact. Please confirm that you are appropriate contact for USFWS and let me know if your office can accommodate that schedule, or if an alternative date is preferred as travel arrangements will have to be made for whatever date is selected.

Thanks in advance,

mi

J. Mark Ingoglia, Chief
PACAF Environmental Branch
DSN 449-1077
808 449-1077

Response to Request for Section 7 Early Consultation/Meeting
July 8, 2011

-----Original Message-----
From: Earl_Campbell@fws.gov [mailto:Earl_Campbell@fws.gov]
Sent: Friday, July 08, 2011 1:45 PM
To: Ingoglia, Mark Civ USAF PACAF A7AN/A7AN
Cc: Duffy, Christopher G LtCol USAF PACAF A7/A7P; Hong, Julie Y CTR USAF PACAF A7PI/A7PI; Leong, Robert Civ USAF PACAF A7PI/A7PI; Grannis, William E Civ USAF PACAF A7/A7AV; Loyal_Mehrhoff@fws.gov
Subject: MTG 1 PM July 15 ?: EIS for Divert Activities and Exercises USFW early consultation/meeting request

Mark:

Could we meet on Friday, July 15th at 1 PM at the Pacific Islands Fish and Wildlife Office? I can get a conference room and a PowerPoint projector. Loyal Mehrhoff, my Field Supervisor, will try to attend the meetings. I'll be attending the meeting as well as several biologists who would be working on future regulatory review.

aloha,

earl w. campbell, ph.d.
assistant field supervisor, invasive species & marianas terrestrial issues
interagency brown treesnake working group coordinator
usfws - pacific islands fish and wildlife office
300 ala moana blvd., room 3 - 122
p.o. box 50088,
honolulu, hawaii 96817

808.792.9414 office phone
808.226.6076 cell phone
earl.campbell@fws.gov e-mail

USAF letter to NMFS Requesting Concurrence with Not Likely to Adversely to Affect Determination, October 3, 2012

DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER
JOINT BASE PEARL HARBOR – HICKAM, HAWAII

03 OCT 2012

MEMORANDUM FOR NATIONAL MARINE FISHERIES SERVICE
MS. ALECIA VAN ATTA
ASSISTANT REGIONAL ADMINISTRATOR FOR PROTECTED RESOURCES
NATIONAL MARINE FISHERIES SERVICE
PACIFIC ISLAND REGIONAL OFFICE
1601 KAPIOLANI BLVD, SUITE 1110
HONOLULU, HI 96814

FROM: AFCEC/Pacific Division/Environmental and Real Property Branch
25 E Street, Suite B-309
Joint Base Pearl Harbor-Hickam HI 96853-5420

SUBJECT: Request for Concurrence with Not Likely to Adversely Affect Threatened and Endangered Marine Species Determination for Divert Activities and Exercises at the Saipan and Tinian International Airports, Commonwealth of Northern Mariana Islands (CNMI)

1. The U.S. Air Force (USAF) respectfully requests your concurrence on the determination that developing facilities and implementing divert activities and exercises at the Saipan and Tinian International Airports, CNMI may affect, but are not likely to adversely affect the following marine species: green sea turtle (Chelonia mydas), hawksbill sea turtle (Eretmochelys imbricate), leatherback sea turtle (Dermochelys coricea), olive ridley sea turtle (Lepidochelys olivacea), blue whale (Balaenoptera musculus), fin whale (Balaenoptera physalus), humpback whale (Megaptera novaeangliae), sei whale (Balaenoptera borealis), and sperm whale (Physeter macrocephalus).

2. For this consultation, the USAF has integrated the requirements of the National Environmental Policy Act and Endangered Species Act so that all procedures run concurrently. As such, in accordance with 50 CFR Section 402.06(a), the USAF intends to have the Draft Environmental Impact Statement for Divert Activities and Exercises Guam and Commonwealth of the Northern Mariana Islands (referred to as "the EIS") stand as the Biological Assessment for threatened and endangered marine species that could be affected by the project. That document is available at: http://pacafdivertmarianaseis.com/.

The action area is considered all areas where threatened and endangered species could be directly and indirectly affected by the project, the potential effects of which include sedimentation and noise. For this project the action area is the nearshore waters of Saipan and Tinian and all areas that could be affected by noise (Attachment 1). Information on the proposed facilities to be developed and the actions proposed in Saipan and/or Tinian are in Section 2.3 of the EIS. Because of the scope of the project, it is not possible to conduct an onsite inspection of all areas affected. It is assumed that all ESA-listed species that could potentially occur in the action area would be seasonally present in the appropriate habitat, as described by the literature review. Sections 3.7.2 of the EIS provide a literature review of the status of the threatened and endangered species in the action area. Sections 4.7 and 5.3.7 of the EIS provide a detailed

analysis of the potential effects (including cumulative effects) of the project on threatened and endangered species. The justification for the determination that the project may affect, but is not likely to adversely affect marine threatened and endangered species is provided at Attachment 2.

Note that we have addressed comments on the Draft EIS provided by the National Marine Fisheries Service, Pacific Islands Regional Office, Habitat Conservation Division and Protected Resources Division on 17 and 18 July 2012, respectively, and incorporated changes into the EIS as appropriate. You can review USAF responses to all comments on the EIS in the comment-response matrix in Appendix G of the Final EIS when it is available later this year.

3. Should you have any questions or require additional information, please contact Mr. William Grannis (808)449-4049, or, william.grannis@us.af.mil.

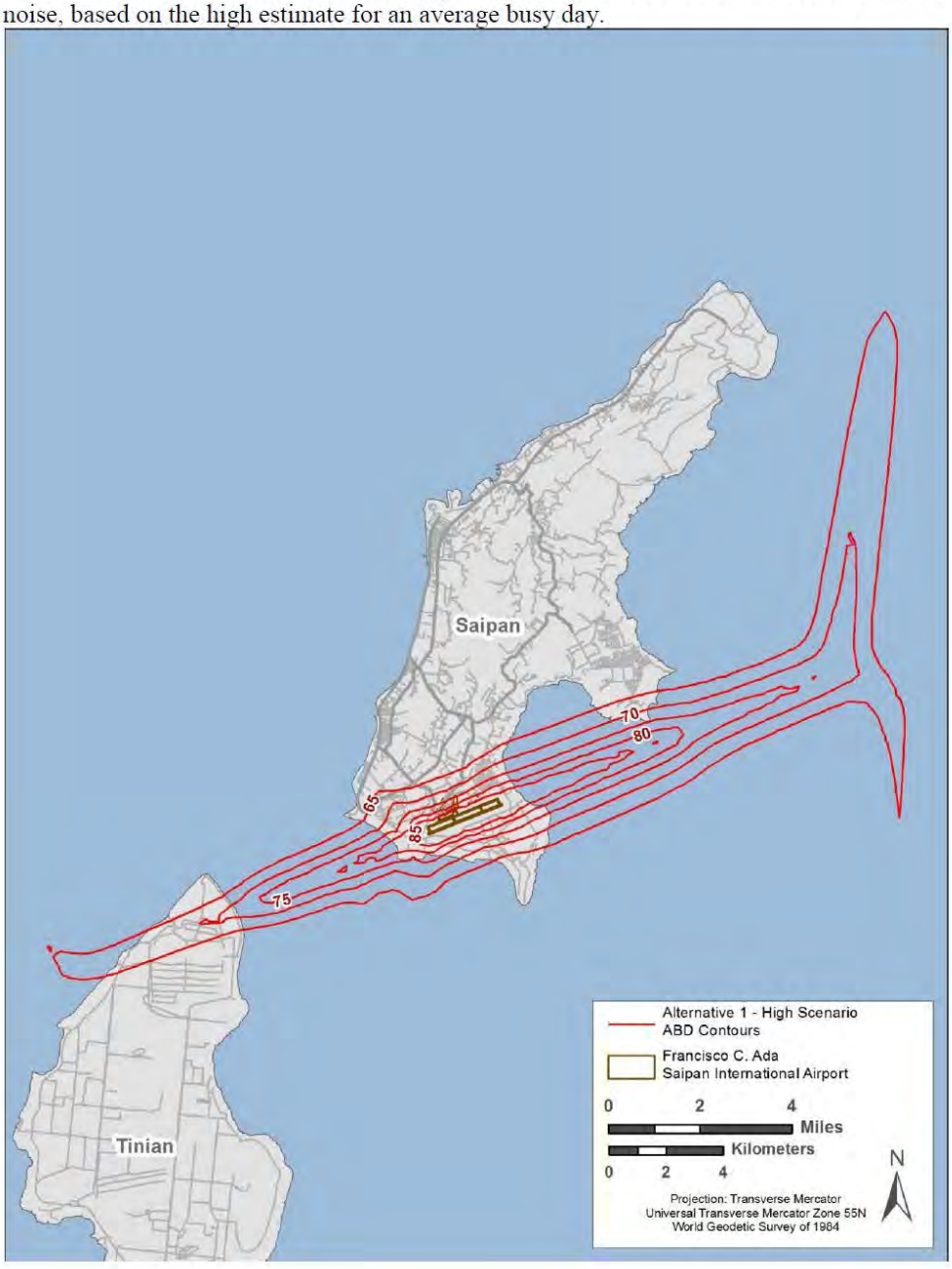
J. MARK INGOGLIA, GS-14, DAF
Chief, Environmental and Real Property
Branch, Pacific Division
Facilities Engineering Center of Excellence
Air Force Civil Engineer Center

2 Attachments:
1. Figures Showing Action Areas on Saipan and Tinian
2. Effects of the Divert Activities and Exercises at the Saipan and Tinian International Airports, Commonwealth of Northern Mariana Islands (CNMI) on Marine Threatened and Endangered Species

cc:
HQ PACAF/A7P
AFCEE/TDX

Attachment 1: Action Area

The action area is the nearshore waters of Saipan and Tinian and all areas that could be affected by noise, based on the high estimate for an average busy day.



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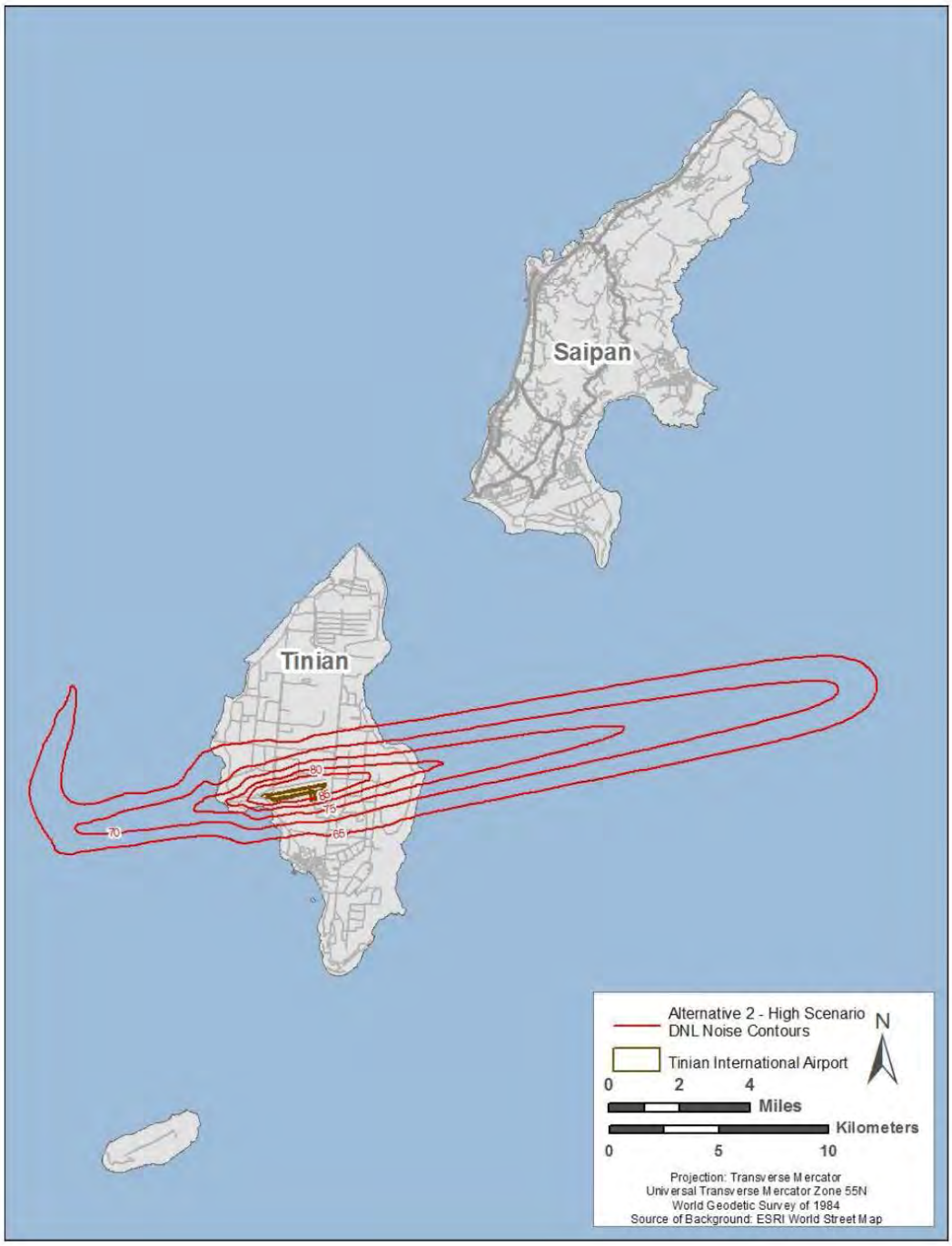
Saipan
Tinian
80
85
75
70
65
Alternative 2 - High Scenario
DNL Noise Contours
Tinian International Airport
N
0 2 4
Miles
Kilometers
0 5 10
Projection: Transverse Mercator
Universal Transverse Mercator Zone 55N
World Geodetic Survey of 1984
Source of Background: ESRI World Street Map

2

Attachment 2: Effects of the Divert Activities and Exercises at the Saipan and Tinian International Airports, Commonwealth of Northern Mariana Islands (CNMI) on Marine Threatened and Endangered Species

While threatened and endangered species of sea turtles and marine mammals occur in the project area, impacts of the project are expected to be insignificant. No construction will occur in the marine waters surrounding Saipan or Tinian and no other direct impacts from construction are expected. An erosion and sediment control plan (ESCP) will be developed per the Northern Mariana Islands Earthmoving and Erosion Control Regulations, and a non-commercial earthmoving permit will obtained from the CNMI Department of Environmental Quality (DEQ). The ESCP will describe the best management practices (BMPs) to be implemented to prevent loss of soil during construction by storm water runoff or wind erosion and to prevent sedimentation of storm sewer or receiving water bodies. BMPs could include installing silt fencing and sediment traps, applying water to disturbed soil, and revegetating disturbed areas as soon as possible after the disturbance, as appropriate. Construction BMPs will be developed and implemented following Department of Defense policy for implementing guidelines provided in Federal and CNMI permitting processes and regulations (e.g., U.S. Environmental Protection Agency Construction General Permit, CNMI DEQ Earthmoving and Erosion Control Regulations and permit), Energy Independence and Security Act Section 438, the CNMI DEQ Stormwater Management Manual). In addition, storm water management and infiltration features will be designed in accordance with the CNMI DEQ Stormwater Management Manual. The implementation of erosion and sediment control measures during and after construction will minimize indirect effects of sedimentation on nearshore habitat and sea turtle nesting habitat, resulting in insignificant indirect effects on marine mammals and sea turtles.

The project is expected to result in elevated noise levels during take off and landings. The exposure of sea turtles and marine mammals to elevated noise levels would be brief (seconds) and would only occur over a period of no more than, at total, 8 weeks of the year. Most sound from aircraft is reflected off the surface of the water and only penetrates a small area of aircraft path over the water. The majority of the flights would occur during the day, while sea turtle nesting occurs at night. In addition to take-offs and landings during military exercises, military aircraft would also conduct training over the ocean within the MIRC. However, these training activities are covered under the Programmatic Biological Opinion on military readiness activities issued by the National Marine Fisheries Service in August 2011 to the U.S. Navy for training activities to be conducted in the Mariana Islands Range Complex. The training exercises are also covered under the NMFS 2010 Final Rule for *Taking and Importing Marine Mammals: Military Training Activities and Research, Development, Testing, and Evaluation Conducted Within the Mariana Islands Range Complex* (75 FR 45527-45556) and the Letter of Authorization, *Taking and Importing Marine Mammals: Taking Marine Mammals Incidental to Navy Training Exercises in the Mariana Islands Range Complex* (77 FR 46733-46739), which is effective until 3 August 2015.

Shipping is not expected to increase as a result of the project. A small but currently unknown number of marine shipments of materials will be required to support construction of facilities at one or both of the airports. The cumulative number of shipments for this project and all other activities in the CNMI during the construction period will be similar to or less than that experienced in the region over the last 10 years. Additionally, the Saipan and Tinian harbors currently receive fuel and it is likely that the same or similar tankers that currently supply those islands with fuel would to do so for military exercises. Those tankers currently have excess capacity when delivering fuel to the islands; thus, few or no additional shipments will be required for this project. As such, shipping would not increase in the Saipan or Tinian harbors and surrounding region and an increased potential for sea turtle and marine mammal-vessel interactions or a fuel spill is not expected. In addition, the Saipan and Tinian harbors are capable of accepting the material

and fuel shipments required for this project and no in-water improvements to those harbors will be required.

The Project is not expected to result in an increase in lights viewed from the nearshore waters or beaches of Saipan or Tinian. While lighting would be expanded near existing facilities and parking lots at one or both of the airports, no new light would be placed between the airfields and the closest shorelines, which are at least 0.25 miles from the end of the runways. The approach lighting, which is closest to the shoreline, would be angled away from the beach and no forested vegetation would be removed from the ends of the runways. Additionally, both airports are on mesas above the beaches. Any additional lighting required at the fuel tanks to be installed adjacent to the port facilities would be located in developed areas with substantial existing lighting. As such, a cumulative increase in light pollution, which can disrupt sea turtle nesting, is not expected.

Because the components of the project would not have more than an insignificant impact threatened and endangered sea turtles and marine mammals, the USAF has determined that the Project may affect, but is not likely to adversely affect the following species.

- green sea turtle
- hawksbill sea turtle
- leatherback sea turtle
- olive ridley sea turtle
- blue whale
- fin whale
- humpback whale
- sei whale
- sperm whale

NMFS Response Letter to USAF Stating Concurrence with the Not Likely to Adversely to Affect Determination,
October 30, 2012

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
1601 Kapiolani Blvd., Suite 1110
Honolulu, Hawaii 96814-4700
(808) 944-2200 • Fax: (808) 973-2941

OCT 30 2012

Mr. J. Mark Ingoglia
Chief, Environmental and Real Property Branch
Department of the Air Force
Air Force Civil Engineer Center
25 E Street, Suite B-309
Joint Base Pearl Harbor-Hickam HI 96853-5420

Dear Mr. Ingoglia:

This letter responds to your October 3, 2012 letter regarding the proposal by the US Air Force (USAF) to implement Divert Activities and Exercises at the Saipan and Tinian International Airports, in the Commonwealth of the Northern Mariana Islands (CNMI). The letter stated the USAF determination that the proposed project is not likely to adversely affect marine species under National Marine Fisheries Service (NMFS) jurisdiction, and requested our concurrence under section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §1531 *et seq.*), with that determination.

Proposed Action/Action Area: The action is described in your letter and in the June 2012 Draft Environmental Impact Statement (DEIS) for the proposed project (USAF 2012). In summary, the USAF proposes to improve the existing airports and associated infrastructure at Saipan and Tinian in order to support modern cargo, tanker, and fighter aircraft that may be diverted from their primary airfields or that may be operated from those fields to support periodic exercises, and humanitarian assistance and disaster relief operations. There would be no in-water work, and no expected increase in shipping to support construction or implementation of the proposed action. During the construction phase, upland construction and repair work would be completed to ensure that both airports can support expected operations. Runways and parking aprons would be extended and strengthened as needed, hangars and storage facilities for fuel and munitions would be improved or constructed. During the implementation phase, increased aircraft operations are expected to occur at these airports over a maximum cumulative total of 8 weeks annually. The action area for this project is estimated to be the in-water area in line with and directly beneath the approach and departure paths of the aircraft operating out of these fields, up to about 1 mile from the shore line.

Listed Species/Critical Habitat: The USAF has determined that following ESA-listed species under NMFS jurisdiction, may be affected by the proposed action: green sea turtles (*Chelonia mydas*), hawksbill sea turtles (*Eretmochelys imbricata*), leatherback sea turtles (*Dermochelys*

coriacea), olive ridley sea turtles (*Lepidochelys olivacea*), blue whales (*Balaenoptera musculus*), fin whales (*Balaenoptera physalus*), humpback whales (*Megaptera novaeangliae*), sei whales (*Balaenoptera borealis*), and sperm whales (*Physeter macrocephalus*). Detailed information about the biology, habitat, and conservation status of sea turtles and marine mammals can be found in their recovery plans and other sources at http://www.nmfs.noaa.gov/pr/species/turtles/ and http://www.nmfs.noaa.gov/pr/species/mammals/.

Critical Habitat: There is no designated critical habitat for any listed marine species within or adjacent to the action area. Therefore, this project will have no effect on designated critical habitat.

Analysis of Effects: In order to determine that a proposed action is not likely to adversely affect listed species, NMFS must find that the effects of the proposed action are expected to be insignificant, discountable, or beneficial as defined in the joint USFWS-NMFS Endangered Species Consultation Handbook: (1) insignificant effects relate to the size of the impact and should never reach the scale where take occurs; (2) discountable effects are those that are extremely unlikely to occur; and (3) beneficial effects are positive effects without any adverse effects (USFWS & NMFS 1998). This standard, as well as consideration of the probable duration, frequency, and severity of potential interactions, was applied during the analysis of effects of the proposed action on ESA-listed marine species, as is described in the USAF consultation request letter. In the letter, the USAF determined that related construction shipping would have no impact, and that exposure to elevated noise and increased lighting would result in insignificant effects on ESA-listed marine mammals and sea turtles. Based on the description of the proposed action and on the best information available to describe the behaviors and biological needs of the species considered here, NMFS agrees with the USAF that the proposed action would have insignificant impacts, or the likelihood of impacts would be discountable, for the marine species considered in this consultation.

Conclusion: NMFS concurs with your determination that implementation of Divert Activities and Exercises at the Saipan and Tinian International Airports, in the Commonwealth of the Northern Mariana Islands is not likely to adversely affect ESA-listed marine species or their designated critical habitat. Our concurrence is based on the finding that the effects of the proposed action are expected to be insignificant, discountable, or beneficial as defined in the joint USFWS-NMFS Endangered Species Consultation Handbook and summarized at the beginning of the Analysis of Effects section above. This concludes your consultation responsibilities under the ESA for species under NMFS's jurisdiction. However, this consultation focused solely on compliance with the ESA. Additional compliance review that may be required of NMFS for this action (such as assessing impacts on Essential Fish Habitat) would be completed by NMFS Habitat Conservation Division in separate communication, if applicable.

ESA Consultation must be reinitiated if: 1) a take occurs; 2) new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the identified action is subsequently modified in a manner causing effects to listed species or designated critical habitat not previously considered; or 4) a new species is listed or critical habitat designated that may be affected by the identified action.

If you have further questions please contact Donald Hubner on my staff at (808) 944-2233. Thank you for working with NMFS to protect our nation's living marine resources.

Sincerely,

Michael D. Tosatto
Regional Administrator

Cc: Patrice Ashfield, ESA Section 7 Program Coordinator, USFWS, Honolulu
Tony Montogomery, Coastal Conservation, USFWS, Honolulu

PIRO Reference No.: I-PI-12-1035-LVA

Literature Cited

Department of the Air Force (USAF). 2012. Draft Environmental Impact Statement for Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands. June 2012.

U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Consultation Handbook. Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act. http://www.nmfs.noaa.gov/pr/pdfs/laws/esa_section7_handbook.pdf

USAF Letter to USFWS Requesting Concurrence with the Not Likely to Adversely to Affect Determination for Nesting Green and Hawksbill Sea Turtles, July 8, 2015

DEPARTMENT OF THE AIR FORCE
PACIFIC AIR FORCES

July 8, 2015

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE
Pacific Islands Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, HI 96850
ATTN: Ms. Kristi Young

FROM: AFCEC/CFPE
25 E ST, STE C-200
JBPH-H, HI 96853-5420

SUBJECT: Request for Concurrence that Developing Divert Capabilities and Conducting Divert Activities and Exercises on Tinian May Affect, but is Not Likely to Adversely Affect Nesting Green and Hawksbill Sea Turtles

1. The U.S. Air Force (USAF) is proposing to develop divert capabilities and conduct activities and exercises at one or more commercial airports in the Commonwealth of the Northern Mariana Islands (CNMI). In June 2013, the USAF and U.S. Fish and Wildlife Service (USFWS) completed formal consultation on a proposal to develop facilities and conduct divert activities and exercises at Saipan International Airport. The USAF is now considering modifying those plans to develop divert capabilities on Tinian, CNMI, and conduct some or all activities and exercises on that island.

2. To comply with Section 7(a)(2) of the Endangered Species Act, the USAF has analyzed the potential effects of the proposed action on species classified or proposed for listing as threatened or endangered. The attached memo summarizes the conclusions of that analysis that planned activities on Tinian, including at Tinian International Airport, may affect, but are not likely to adversely affect, nesting green and hawksbill sea turtles, and would not affect any other species classified as endangered, threatened, or proposed under the Endangered Species Act. There is no designated or proposed critical habitat on Tinian.

3. In accordance with 50 CFR 402.13, the USAF requests concurrence from the USFWS that developing divert capabilities and implementing divert activities and exercises on Tinian may affect, but is not likely to adversely affect, nesting green and hawksbill sea turtles.

4. If you have any questions or require additional information, please contact me at (808) 449-4049 or william.grannis@us.af.mil.

WILLIAM GRANNIS, GS-13, DAF
Environmental Program Manager
Facilities Engineering Center of Excellence
Air Force Civil Engineer Center

Attachment:

Assessment of Potential Effects to Threatened, Endangered, and Proposed Species from Developing Divert Capabilities and Conducting Activities and Exercises on Tinian, 08 July, 2015

Assessment of Potential Effects to Threatened, Endangered, and Proposed Species from Developing Divert Capabilities and Conducting Activities and Exercises on Tinian

The U.S. Air Force (USAF) is proposing to improve the existing commercial airports at Saipan International Airport (GSN) and Tinian International Airport (TNI) and conduct from those airports periodic divert landings, joint military exercises, and humanitarian assistance and disaster relief efforts. A *Draft Environmental Impact Statement (EIS) for Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands* (USAF 2012) has been prepared, and consultation as required by Section 7 of the Endangered Species Act (ESA) was completed for proposed activities on Saipan (USFWS 2013).

Since completion of the Draft EIS and Section 7 consultation for activities on Saipan, the USAF has evaluated public, agency, and stakeholder comments as part of the National Environmental Policy Act process and revised their proposed plans, resulting in modified versions of the alternatives presented in the Draft EIS. The USAF is now considering developing infrastructure to support parking of up to nine KC-135 or similar large-bodied aircraft at GSN; or up to 12 KC-135 or similar aircraft at TNI; or a combination of up to 12 KC-135 or similar aircraft between both airports (e.g., 7 to 10 aircraft at TNI and 2 to 5 aircraft at GSN). The USAF would typically exercise two to four of those KC-135 or similar aircraft, but not fighter aircraft, from one or both airfields for up to eight weeks per year.

This assessment summarizes the USAF conclusions about the potential effects that developing divert capabilities on TNI and conducting activities there would have on species that occur on Tinian that are classified under the ESA as endangered, threatened, or proposed.

Proposed Activities on Tinian

The USAF proposes to construct some or all of the following facilities and improvements at TNI: a parking apron; taxiways; cargo pad; maintenance facility; and a fuel storage, hydrant, and delivery system. As shown in **Figure 1**, these facilities would be developed on either the north or south side of the TNI runway, but not both. A bulk fuel storage facility also might be developed at the Tinian Seaport, and fuel would be transported by truck to the airport. If deemed feasible in the future after appropriate analysis is conducted and suitable agreements are developed with CNMI authorities, PACAF might develop a fuel pipeline from the seaport to the airport.

Areas at and surrounding TNI and the Tinian Seaport, where facilities would be developed and divert activities and exercises would occur, contain no original native vegetation and consist of developed land, mowed fields, and areas vegetated with mixed herbaceous scrub and second-growth introduced forests dominated by *Leucaena leucocephala* and *Casuarina equisetifolia* (Amidon 2009; USAF 2012, Section 4.6.2; NAVFAC 2015 b, Section 3.9.4.1). Native limestone forests on Tinian are restricted to areas along and below cliffs, and those forests do not occur within or near TNI or the seaport.

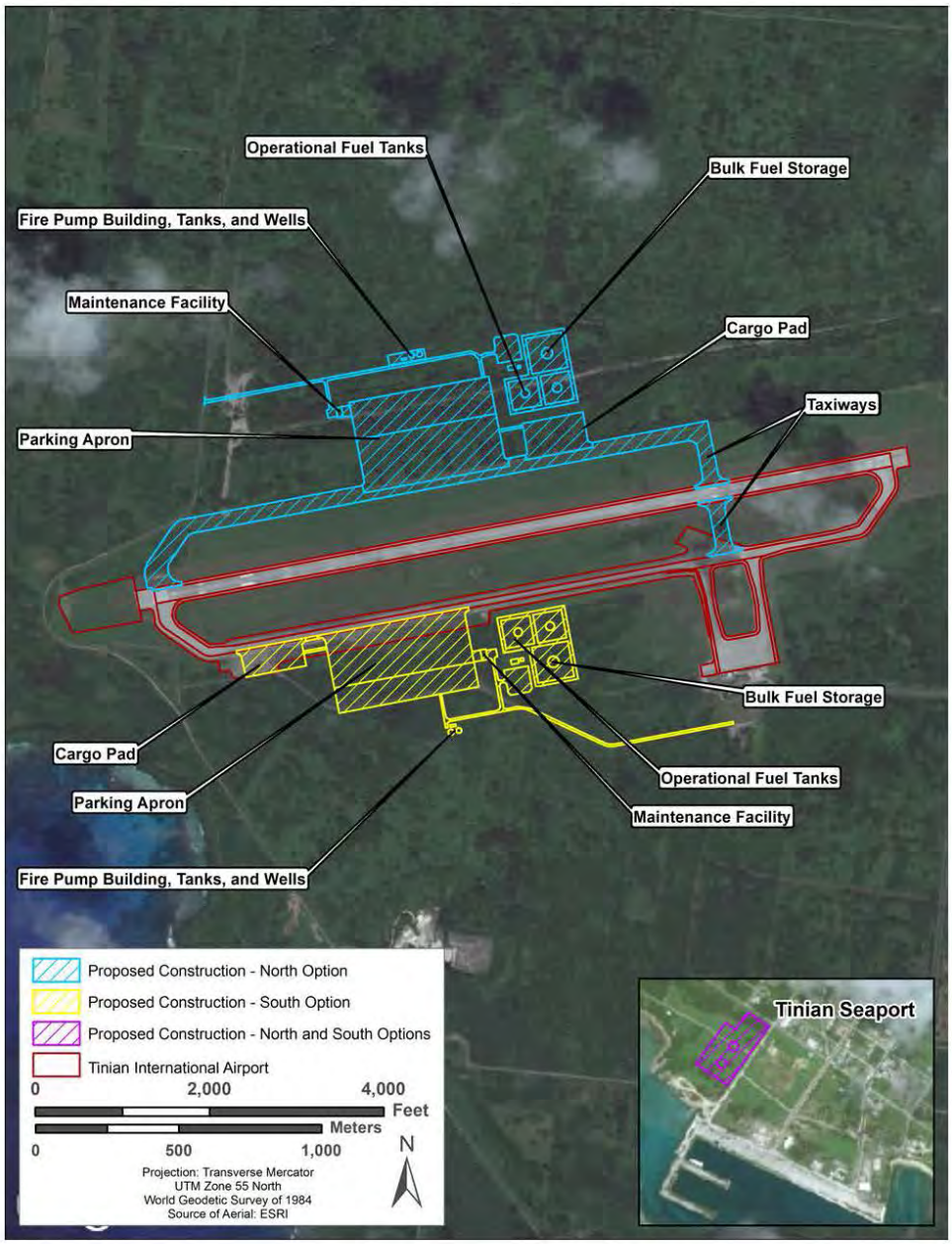

Figure 1. Location of Proposed Facilities at TNI.

The capacity for military aircraft at TNI would be up to 12 KC-135 tankers or similar wide-bodied aircraft. Typical exercises at that airfield would include two to four wide-bodied aircraft for up to eight weeks per year. Those aircraft would take off and land between 2 and 4 times per day (for a total of four to eight operations per day) and usually would fly five days per week for up to eight weeks per year. Aircraft would operate out of Saipan or Tinian, or a combination of both airfields. If both airfields were developed and used, about two-thirds of the aircraft operations would occur on Tinian. Temporary billeting would be required on both Saipan and Tinian for up to 265 personnel supporting aircraft operations and would be procured on the local economy.

The Draft EIS (USAF 2012) presents predicted sound levels from the operation of military aircraft on Saipan and Tinian during an "average busy day" for three proposed levels of operation. For the Tinian low operations scenario, the calculation was based on operation of 12 KC-135s from TNI for a total of 1,920 operations over eight weeks per year (five days per week), or about 48 KC-135 operations per average busy day, plus the predicted future level of commercial and private aircraft operations at that airport. For that scenario, the contour for 65 A-weighted decibels (dBA) is predicted to extend west past the end of the TNI runway to the coast (**Figure 2**).

Since publication of the Draft EIS, the USAF has adjusted the level of proposed activities and now plans to conduct about 720 or fewer KC-135 operations from TNI over eight weeks per year, or about 18 KC-135 operations on an average busy day. This is about one-third of the number of operations used to predict the sound levels on TNI in **Figure 2**. Thus, average sound levels would be substantially lower than those shown in **Figure 2**.

The methods and procedures that the USAF would implement to interdict and control brown tree snakes and other invasive species while conducting this project are the same as described in the *Biological Opinion for the U.S. Air Force's Divert Activities and Exercises at GSN* (USFWS 2013, pp. 10-14). Implementation of that biosecurity program will prevent adverse effects to listed species, and other native wildlife, from introduction of non-native species.

Potential Effects to Threatened and Endangered Species

The U.S. Fish and Wildlife Service (2015) Environmental Conservation Online System lists six threatened or endangered species that occur or could occur on Tinian. Of these, the Mariana swiftlet (*Aerodramus bartschi*) and nightingale reed-warbler (*Acrocephalus luscinia*) are no longer found on the island (USFWS 1998b, Cruz et al. 2008, USFWS 2010a). In addition, at least one nest of a hawksbill sea turtle (*Eretmochelys imbricata*) has been found on Tinian. The species analyzed here thus include the Mariana fruit bat (*Pteropus mariannus mariannus*), Mariana common moorhen (*Gallinula chloropus guami*), Micronesian megapode (*Megapodius laperouse*), and green (*Chelonia mydas*) and hawksbill turtles (**Table 1**). There is no designated or proposed critical habitat on Tinian.

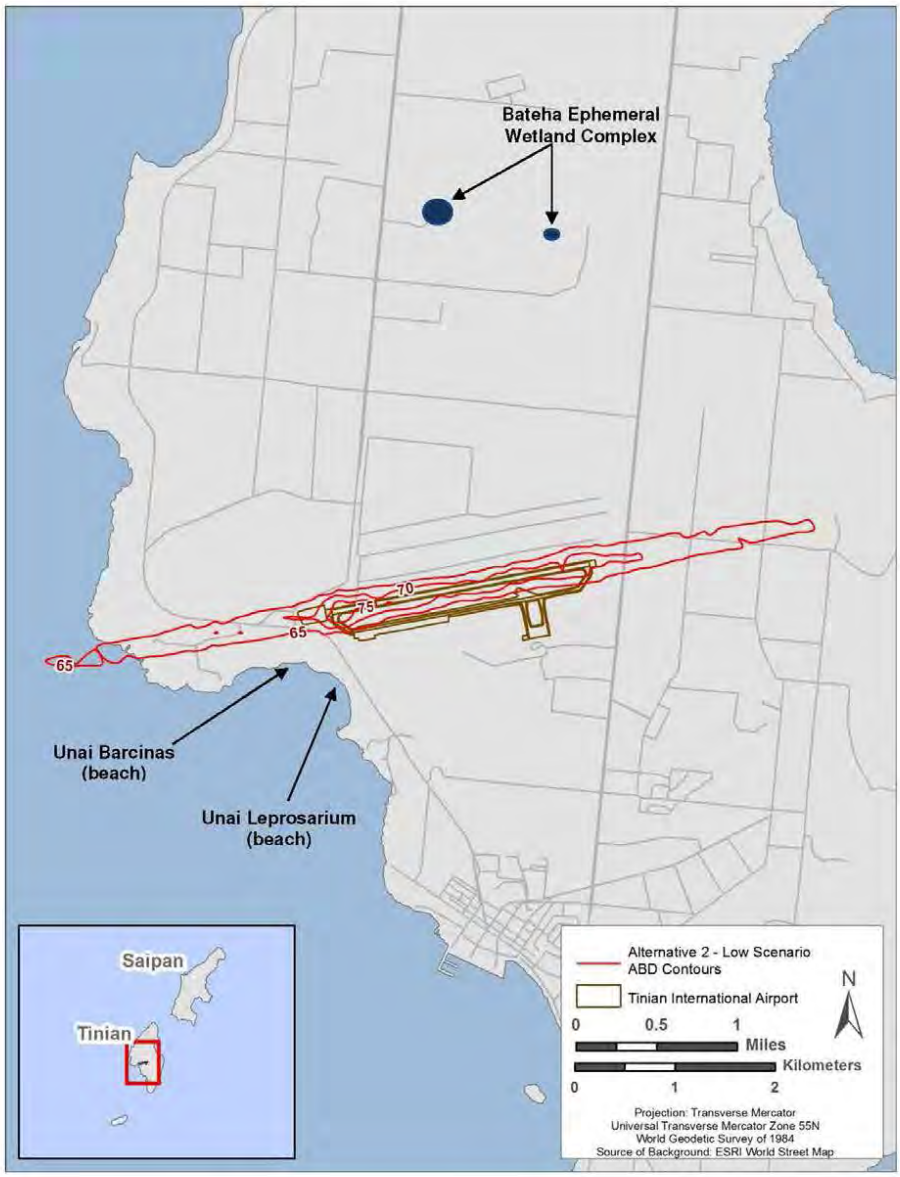

Figure 2. Noise Contours (dBA day-night level) during an average busy day at TNI for 48 KC-135 operations per day

Table 1. Threatened and Endangered Species in the Commonwealth of the Northern Marianas

Species	Scientific Name	Status	Occurrence on Tinian
Mariana fruit bat	*Pteropus mariannus mariannus*	T	Extirpated (USFWS 2014)
Mariana common moorhen	*Gallinula chloropus guami*	E	Occurs on Lake Hagoi and seasonal wetlands (Takano and Haig 2004)
Micronesian megapode	*Megapodius laperouse*	E	Rare or absent from Tinian (USFWS 1998a, 2010b)
Green sea turtle	*Chelonia mydas*	T	Nests on Tinian (Pultz et al. 1999; Kolinski et al. 2001)
Hawksbill sea turtle	*Eretmochelys imbricata*	E	At least one nesting effort documented on Tinian (NAVFAC 2015b)

Source: USFWS 2015; T = Threatened, E = Endangered

Mariana Fruit Bat. Mariana fruit bats have rarely been seen on Tinian within the past 30 years (Brooke 2009, USFWS 2009) and now appear to be extirpated from that island (USFWS 2014) or occur there only incidentally. Surveys in 1994 and 1995 did not observe Mariana fruit bats; however, two incidental sightings were reported from other locations on Tinian (Brooke 2009). No fruit bats were sighted on Tinian during surveys in 2000 (Cruz et al. 2000). In June 2005, approximately five Mariana fruit bats were seen in the cliff-line forest during a routine forest bird survey of the Maga bird transect (Brooke 2009). During February through August 2008, eight separate station counts were conducted at seven locations on Tinian; no fruit bats were observed during station counts or opportunistically (Brooke 2009). Although suitable fruit bat habitat does occur on Tinian, the continued observations of very few fruit bats, and the likelihood that individuals observed on Tinian are not residents, indicate that the Mariana fruit bat currently occurs only incidentally on Tinian. Mariana fruit bats, therefore, would not be affected by proposed activities on Tinian.

Micronesian megapode. Micronesian megapodes have been seen very infrequently on Tinian in recent years (USFWS 1998a, Kessler and Amidon 2009). None were detected during an extensive survey of potential habitat in 2008 (Kessler and Amidon 2009) and 2013 (NAVFAC 2014a), and they either have been extirpated from that island (USFWS 2010b) or occur there only incidentally. In the past, megapodes have been found on Tinian primarily within and near limestone forests in the Maga and Mt. Laso areas (USFWS 1998a, Kessler and Amidon 2009, NAVFAC 2013a). No construction or other project activities would occur in or near any potential habitat for this species, and sound levels in that potential habitat would not increase due to project construction or aircraft operations. Thus, Micronesian megapodes would not be affected by proposed activities on Tinian.

Mariana Common Moorhen. There are no wetlands within or near areas that would be disturbed for construction of facilities at TNI and no wetlands occur within one mile of the flight path to that airport (NAVFAC 2015a). The closest wetlands to TNI that are used by Mariana common moorhens are the Bateha (**Figure 2**) and Mahalang wetland complexes (NAVFAC

2014a), located about 1.5 to 3 miles north of TNI (**Figure 2**). Moorhens also occur on perennial Lake Hagoi, located about 4 miles north of TNI (Takano and Haig 2004, NAVFAC 2014a).

Average daily sound levels at wetlands on Tinian used by moorhens would not increase due to project construction or aircraft operations. **Figure 2** shows noise contours for an "average busy day", based on the operation of 12 KC-135 aircraft taking off and landing twice per day, plus the cumulative effects of predicted commercial and private operations at TNI. The USAF now plans to operate 2 to 4 such aircraft from Tinian during most or all exercises, and average sound levels would be lower than shown in **Figure 2**. Peak noise levels at those wetlands also would not be high, as those aircraft will not fly over or near the wetlands during takeoffs and landings. Thus, Mariana common moorhens would not be affected by proposed activities on Tinian.

Green and Hawksbill Sea Turtles. Green and hawksbill turtles forage offshore of Tinian (Pultz et al. 1999; Kolinski et al. 2001; Maison et al. 2010) and there is a small population of green sea turtles that nest on most or all beaches on Tinian (Pultz et al. 1999, NAVFAC 2014b). One hawksbill nest was documented on the northeastern shore of Tinian (more than 2 miles from TNI) during monthly surveys of beaches conducted during 1999-2012 (NAVFAC 2015b, Table 3.9-3), and nesting by this species on Tinian is uncommon (Pultz et al. 1999; NAVFAC 2014b, 2015b).

No construction would occur on or near nesting beaches or marine habitat of these species. Department of Defense policies, compliant with Federal and CNMI regulations, will be followed to minimize erosion and sedimentation during construction and to manage storm water runoff after construction. By implementing those policies, adverse impacts of sedimentation and runoff would be negligible. Thus, sea turtle nesting and foraging habitat would not be adversely affected by development of facilities at TNI or the Tinian port or by implementation of divert activities or exercises, and the project would have no effect on sea turtles in the marine environment.

Average sound levels on the western coast of Tinian might be slightly higher directly under the flight path of TNI during divert operations and exercises (**Figure 2**). That section of the coast is steep and rocky and has no or very little beach habitat for nesting. The nearest beaches that are commonly used by green sea turtles for nesting are Unai Barcinas and Unai Leprosarium (DON 2010, Section 3.8.2.2.1), located 0.3 to 0.8 miles south to southwest of the TNI runway (**Figure 2**). Those beaches are outside of the 65 dBA DNL noise contours for an average busy day for operation of 12 KC-135 aircraft, and noise contours would be smaller for planned operation of 2 to 4 aircraft per day at TNI. However, during takeoffs and landings of military aircraft, sea turtles nesting on those beaches, and hatchling turtles moving from nests to the ocean, could be temporarily exposed to noise from military aircraft taking off and landing at TNI. Although aircraft with sound emissions similar to a KC-135 occasionally fly into and out of TNI, that level of sound would occur more frequently during exercises and operations than currently experienced. Exposure to elevated noise levels would be brief (seconds) and, with the exception of emergency divert landings and associated take-offs, usually would occur over a period of no more than about eight weeks of the year. Thus, any avoidance response or other change in behavior would be short-term and would not permanently displace sea turtles. Noise from take-offs and landing would not result in chronic stress because military aircraft operations would occur infrequently, sea turtles nest infrequently, and thus those turtles would not be

repeatedly exposed to low-altitude overflights. **Because effects would be insignificant and would not be sufficient to harm or harass sea turtles, developing divert capabilities and conducting divert activities and exercises at TNI may affect, but is not likely to adversely affect, green or hawksbill sea turtles in terrestrial environments.**

Potential Effects to Proposed Species

In October 2014, the USFWS proposed to list 23 plant and animal species from the Mariana Islands as threatened or endangered (79 FR 59364–59413). In response to a request from the USAF, the USFWS identified three of those species that could occur near TNI: a tree (*Heritiera longipetiolata*), an orchid (*Dendrobium guamense*), and the humped tree snail (*Partula gibba*) (letter from R. Rounds, USFWS, to W. Grannis, AFCEC, 22 January 2015).

Heritiera longipetiolata. This tree is endemic to the Mariana Islands and historically was found in forests on Guam, Rota, Saipan, and Tinian. *H. longipetiolata* occurs in moist forests on limestone cliffs and in coastal sites with windy conditions (NAVFAC 2015b, Appendix L1; 79 FR 59378). On Tinian it has been found near Unai Masalok on the eastern coast, along the Lamanibot Bay escarpment on the northwestern coast, and along the southeastern coast between Puntan Barangka and Puntan Kastiyu. There were fewer than 10 individuals known on Tinian during or before 2013 (79 FR 59378). No stands of native forest where this species could occur would be disturbed. Development of divert capabilities at TNI therefore will not affect *H. longipetiolata*.

Dendrobium guamense. This orchid is known from forests of Guam, Rota, Saipan, and Tinian. There is only one reported occurrence on Tinian (79 FR 59378), over 1.8 miles from TNI (NAVFAC 2014a). No stands of native forest where this species could occur will be disturbed. Development of divert capabilities at TNI therefore will not affect *D. guamense*.

Humped Tree Snail. The humped tree snail is endemic to the Mariana Islands and is found in cool, shaded forests. Live humped tree snails were found in native limestone forest adjacent to Lamanibot Bay on the northwestern coast of Tinian during extensive surveys of potential habitat on the island in 2013 (NAVFAC 2014a). That site is about 2.8 miles from TNI. Old shells, but no live snails, were found in other stands of native limestone forest, the closest of which was near the eastern shore of Tinian about 1.8 miles from TNI. No stands of native forest where this species could occur will be disturbed. Therefore, development of divert capabilities at TNI will not affect the humped tree snail.

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BIOLOGICAL ASSESSMENT

FOR

HEADQUARTERS PACIFIC AIR FORCES DIVERT ACTIVITIES AND EXERCISES IN SAIPAN

HEADQUARTERS, PACIFIC AIR FORCES
JOINT BASE PEARL HARBOR-HICKAM, HAWAI'I

AUGUST 2012

ABBREVIATIONS AND ACRONYMS

ac	acre
AFB	Air Force Base
BA	Biological Assessment
BEAR	Basic Expeditionary Airfield Resources
cm	centimeter
CNMI	Commonwealth of the Northern Mariana Islands
dBA	A-weighted decibel
DNL	Day-Night Average Sound Level
DOD	Department of Defense
EIS	Environmental Impact Statement
ESA	Endangered Species Act
F.R.	Federal Register
GSN	Saipan International Airport (Federal Aviation Authority international airport code)
ha	hectare
lb	pound
kg	kilogram
km	kilometers
mi	miles
m	meters
PACAF	Pacific Air Forces
SUMB	Saipan Upland Mitigation Bank
USAF	U.S. Air Force
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service

BIOLOGICAL ASSESSMENT

FOR

HEADQUARTERS PACIFIC AIR FORCES
DIVERT ACTIVITIES AND EXERCISES IN SAIPAN

HEADQUARTERS PACIFIC AIR FORCES (PACAF)

JOINT BASE PEARL HARBOR-HICKAM, HAWAI'I 96853-5233

AUGUST 2012

BIOLOGICAL ASSESSMENT FOR PACIFIC AIR FORCE DIVERT ACTIVITIES AND EXERCISES IN SAIPAN

TABLE OF CONTENTS

FIGURES

TABLES

1. Introduction

The U.S. Air Force (USAF) proposes to improve the Saipan International Airport (hereafter referred to by the airport code GSN) and associated infrastructure to support expanding mission requirements in the western Pacific. After completing an analysis as required by the National Environmental Policy Act, the USAF would consider developing and constructing facilities and infrastructure at GSN to support a combination of USAF and joint cargo, fighter, and tanker aircraft and associated support personnel for divert landings, periodic exercises, and humanitarian assistance and disaster relief.

The purpose of the proposed project is to establish divert activity capabilities to support and conduct current, emerging, and future exercises, while ensuring the capability to meet mission requirements in the event that access to Andersen Air Force Base (AFB) on Guam or other western Pacific locations is limited or denied. For example, the need for humanitarian assistance can arise suddenly and without warning, such as disaster response in Japan during the 2011 earthquake and tsunami. If this were to occur during scheduled training exercises at Andersen AFB, training or response efforts might be delayed or impeded. Furthermore, natural or man-made disasters could impact Andersen AFB's missions, requiring reliance on designed and designated divert airfield capabilities. Because of the proximity to forward-deployed forces in the western Pacific, the Marianas provides the best alternative for forward-deployed U.S. forces to train on U.S.-owned lands and to develop the proposed additional divert capabilities.

The USAF and other services must achieve the missions mandated by Title 10 United States Code (U.S.C.) in the event of a disruption of operational capabilities at Andersen AFB or other western Pacific locations. To more assuredly achieve this mission, an additional location within the Marianas Archipelago must have the capabilities to sustain USAF missions on a temporary basis. Facilities and activities at GSN would not replace the capabilities at Andersen AFB, but would be an additional location on U.S. territory in the western Pacific that can help ensure continued military readiness should access to Andersen AFB or other western Pacific locations be limited or denied, such as during a training event, humanitarian assistance efforts, or natural or man-made disasters. The need for this project is derived from the following related operational requirements that are necessary to successfully support the mission of the Pacific Air Forces (PACAF):

- Ensure airfield accessibility if access to Andersen AFB or other western Pacific airfields is limited or denied
- Provide for contingency operations to include humanitarian assistance and disaster relief efforts
- Accommodate future increases in operational tempo and associated training
- Achieve and sustain readiness.

This project would develop critical enhancements at GSN to increase operational and divert capabilities needed by the USAF, especially in humanitarian assistance and disaster relief and joint exercises. These enhancements are required for the USAF to maintain a state of military readiness commensurate with the national defense and humanitarian assistance and disaster relief missions. This project focuses on the development and improvement of existing divert or contingency airfield capabilities and does not include the permanent deployment or "beddown" of forces in the Marianas. Hence, construction activities for the project are focused on improvements needed at GSN to increase USAF capabilities to respond to emergent needs, to ensure forces that are diverted from Andersen AFB or other western Pacific locations can continue to operate, and to train to these capabilities.

In summary, the proposed project is needed because there is not an existing divert or contingency airfield on U.S. territory in the western Pacific that is *designed and designated* to provide strategic operational and exercise capabilities for U.S. forces when needed and humanitarian assistance and disaster relief in times of natural or man-made disasters. Implementation of the project would support the PACAF mission to provide ready air and space power to promote U.S. interests in the Asia-Pacific region during peacetime, through crisis, and in war. For additional information on the purpose and need of the project, see the *Environmental Impact Statement* (EIS) *for Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands* (USAF 2012).

1.1 Scope of Document and Project

The purpose of this Biological Assessment (BA) is to assess the potential effects of establishing divert capabilities and associated operations at GSN on terrestrial species listed as endangered or threatened under the Endangered Species Act (ESA) and their designated critical habitat. This BA addresses the potential impacts of improving facilities at GSN. It also addresses implementation of divert activities and exercises at the airport, including ground movements and immediate approaches and departures of aircraft at the airport during unit-level training and exercises. It does not, however, address actual air warfare and air logistics training (i.e., above 3,050 meters [m] (10,000 feet)) that would occur in the Mariana Islands Range Complex or elsewhere by aircraft temporarily operating from GSN. Those air warfare and training activities are described in the *Mariana Islands Range Complex Environmental Impact Statement/ Overseas Environmental Impact Statement, May 2010* (DON 2010), and impacts on ESA-listed species from those activities have been addressed in Biological Opinions developed by the U.S. Fish and Wildlife Service (USFWS) (USFWS 2010a) and National Marine Fisheries Service (NMFS 2011).

The USAF has requested that this project be appended to the *Programmatic Biological Opinion Regarding the Reestablishment, Management, and Use of the Saipan Upland Mitigation Bank* (SUMB), *Saipan* (USFWS 2008a). This BA therefore considers and addresses the impact analyses methodologies and mitigation measures described in the SUMB Biological Opinion.

1.2 Protected Species Addressed

There are 16 species listed as threatened or endangered that occur or have occurred in the Mariana Islands archipelago (USFWS 2011a). Based on conversations with USFWS staff during informal consultation (see **Section 1.3**), the USAF has determined that six of those species could occur in terrestrial environments on Saipan: threatened Mariana fruit bat (*Pteropus mariannus mariannus*), endangered nightingale reed-warbler (*Acrocephalus luscinia*), endangered Mariana swiftlet (*Aerodramus bartschi*), endangered Mariana common moorhen (*Gallinula chloropus guami*), endangered Micronesian megapode (*Megapodius laperouse*), and threatened green sea turtle (*Chelonia mydas*).

The Mariana fruit bat and Micronesian megapode are restricted to forested habitats, primarily on the northern part of the island (USFWS 1998a, 2009a). Land at and surrounding GSN where facilities would be developed and divert activities and exercises would occur has been cleared of native vegetation or is vegetated with second-growth forests dominated by tangantangan (*Leucaena leucocephala*). Due to lack of suitable habitat within the action area, and based on discussions with the USFWS in January 2012, systematic surveys for these species were not conducted for this project. However, during surveys of the action area conducted in 2012 for other rare species and to characterize avian populations (MES 2012), observers were vigilant for megapodes and flying and roosting fruit bats. Even though observation times of those surveys were favorable for detection of these species, no fruit bats or megapodes were observed or heard during any of the surveys. In addition, no optimal habitat was found in the areas surveyed of sufficient quality or quantity to support these species. Because these species are rare or do not occur on

the southern part of Saipan and there is no habitat for them within the action area, the USAF concludes that developing divert capabilities and conducting divert activities and exercises at GSN will have no affect on the Mariana fruit bat and Micronesian megapode, and those species are not discussed further in this BA.

In addition to the threatened green sea turtle, the endangered hawksbill sea turtle (*Eretmochelys imbricata*), leatherback sea turtle (*Dermochelys coriacea*), and olive Ridley turtle (*Lepidochelys olivacea*) can occur in the ocean surrounding Saipan. The USAF will consult with the National Oceanic and Atmospheric Administration Fisheries Service as required by the ESA to address impacts of their proposed project on those species in the marine environment, and those species are not addressed in this BA.

Six species classified as candidates for listing under the ESA occur in the Commonwealth of the Northern Mariana Islands (CNMI) (76 Federal Register [FR] 66370). Two of those species, the Mariana eight-spot butterfly (*Hypolimnas octocula mariannensis*) and humped tree snail (*Partula gibba)* might occur on Saipan. Although host plants used by the Mariana eight-spot butterfly (*Procris pedunculata* and *Elatostema calcareum*) occur on Saipan, this butterfly has not been detected there in recent years and it could be extirpated from the island (USFWS 2011b). The humped tree snail is known to occur on Saipan, but its preferred habitat of cool, shaded forests or other areas with high humidity (USFWS 2011c) does not occur within the upland areas that might be developed for the USAF's proposed project (MES 2012). Although a few scattered individuals of host plant species (e.g., papaya [*Carica papaya*], coconut palm [*Cocos nucifera*], hodda [*Ficus tinctoria*], and sumac [*Aidia cochichinensis*]*)* were found within the project survey areas during surveys conducted on and around GSN in 2012, Mariana eight-spot butterflies and humped tree snails were not detected and the host plants do not appear to be of sufficient abundance or have the characteristics necessary to support a population of either candidate species. It is therefore unlikely that the proposed project would have any adverse effect on these candidate species and they are not further discussed in this BA.

1.3 Consultation History

The following interactions between the USAF and USFWS related to this project have occurred.

- **July 14, 2011** – USAF and USFWS staff met in the USFWS office in Honolulu, Hawaii, to introduce the project, obtain a list of protected species that might occur in the project area, and discuss the consultation process.
- **July 15, 2011** – Staff from HDR, a contractor working for PACAF, requested of the USFWS information about the nightingale reed-warbler survey protocol and about the SUMB. The requested information was sent by USFWS staff on July 18.
- **September 7, 2011** – Staff from HDR requested copies of Biological Opinions for the SUMB and for activities at and near GSN. Those Biological Opinions were sent by USFWS staff on September 23.
- **January 5, 2012** – USAF and USFWS staff met in the USFWS office in Honolulu, Hawaii, to discuss plans for nightingale reed-warbler surveys and potential impacts on that and other species.
- **May 31, 2012** – USAF and USFWS staff met in the USFWS office in Honolulu, Hawaii, to discuss the results of surveys conducted for threatened and endangered species and the process for completing the consultation.
- **July 6, 2012** – USAF and USFWS staff met in the USFWS office in Honolulu, Hawaii, to discuss USFWS comments on the Draft EIS for this project.

- **July 19, 2012 –** USAF submitted a draft of this BA to the USFWS for review.
- **July 27, 2012** – USAF and USFWS staff had a phone conversation to discuss USFWS comments on the draft BA.
- **August 8, 2012** – USFWS provided by email additional comments on the draft BA.

2. Project Description and Action Area

This section describes the USAF plan to develop airfield operational capabilities at GSN, exercise divert and humanitarian assistance and disaster relief airlift staging capabilities, conduct joint military exercises, implement fueling and fuel storage, and develop billeting and other personnel requirements. This section also identifies the action area that could be directly or indirectly affected by developing divert capabilities and conducting divert activities and exercises on Saipan, and the measures that the USAF would take to avoid and minimize impacts on threatened and endangered species. Additional details about this proposed project are in the associated EIS (USAF 2012).

The USAF proposes to improve facilities and infrastructure at GSN to support a combination of USAF and joint cargo, fighter, and tanker aircraft and associated support personnel for divert landings, periodic exercises, and humanitarian assistance and disaster relief. Divert landings and humanitarian assistance and disaster relief would occur at the airport as required. The expanded facilities would be used on an as-needed basis and would not be used as a permanent full-time beddown or installation location.

GSN would be improved to an airfield design that can accommodate up to 12 KC-135 or similar aircraft. This airfield design would also accommodate other military cargo and tactical aircraft. Because the space required to accommodate large heavy lift cargo aircraft is approximately twice as large as what is required to support fighter and tactical aircraft, it is assumed that up to 24 fighter or tactical aircraft could be diverted to or exercised from GSN simultaneously, or a mix of fighter, tactical, and heavy lift cargo aircraft (e.g., 10 large cargo aircraft and 4 fighters) aircraft could be diverted to or exercised from GSN simultaneously as long as the mix does not exceed airfield design capabilities. The number of temporary support personnel accompanying the aircraft would not exceed 700, regardless of what mix of aircraft is diverted to or exercised from GSN.

2.1 Construction

To reduce strain on existing airport and commercial facilities and infrastructure, the USAF would construct and expand new facilities, rather than fully utilize existing facilities during the construction and implementation phases. These new facilities could include an expanded runway; associated pavement markings and lighting; parking aprons; temporary munitions storage area; hazardous cargo pad; an arm/disarm pad; aircraft hangar; maintenance facility; jet fuel receiving, storage, and distribution system; and navigational aids. Temporary billeting facilities could also be developed at the airport. The total size of these facilities, if they are all constructed, would be about 26 hectares (ha) (63 acres [ac]); 24 ha (59 ac) would be at GSN and 2 ha (4 ac) would be at the Port of Saipan (see **Table 2-1**).

The projected timeline for the completion of most or all construction is 24 to 36 months. However, the timing of construction would depend on the completion of a Safety Management Plan and agreement by the Federal Aviation Administration, Commonwealth Ports Authority, and commercial carriers.

Facilities at GSN and the Port of Saipan would be constructed in phases. The USAF currently plans to construct the bulk fuels tank, maintenance facility, and hazardous cargo pad in the first phase of construction, one or both parking aprons and the remainder of the airport fuel system in the second phase, and the fuel storage tanks at the Port of Saipan in a third phase. Depending on mission needs and Congressional authorization and appropriations, some project elements might not be completed on Saipan, or a smaller facility than listed in **Table 2-1** could be developed. For example, the USAF might decide not to extend one or both ends of the GSN runway, or might decide not to construct the entire parking apron. This BA addresses all project elements listed in **Table 2-1**; however, as described further in **Section 2.4**, the USAF would mitigate impacts separately for each project phase as projects are authorized and appropriated by Congress.

Table 2-1. Project Elements that Might be Constructed on Saipan

Project Element	Approximate Size hectares (acres)
Maximum Runway Extension	3.6 (8.9)
Parking Apron	8.9 (22.1)
Temporary Munitions Storage Area	0.4 (1.0)
Hazardous Cargo Pad and Arm/Disarm Pad	1.8 (4.5)
Aircraft Hangar	0.3 (0.8)
Maintenance Facility	0.04 (0.1)
Fuel Storage and Fueling Infrastructure - GSN	3.6 (8.9)
Fuel Receipt and Storage – Port of Saipan	1.8 (4.4)
Billeting	5.0 (12.3)
Total	**25.5 (63.0)**

Runway. The runway at GSN is 2,650 m (8,700 feet) long by 45 m (150 feet) wide and has two 8-m- (25-foot-) wide paved shoulders. To support operational requirements of the KC-135 and other cargo aircraft, the USAF could extend the runway to a total length of 2,850 or 3,070 m (9,350 or 10,075 feet). If the runway were to be extended to the maximum length, it would be lengthened by 220 m (725 feet) to the west and 200 m (650 feet) to the east. If extended to 2,850 m (9,350 feet), the eastern end of the runway would be lengthened by 200 m (650 feet); the western end would not be altered. For both options, the width of the runway would remain 45 m (150 feet) with 8-m- (25-foot-) wide paved shoulders, and would also include turnarounds. **Figure 2-1** shows a schematic site plan of the proposed airport additions, including the possible eastern and western runway extensions. The runway extensions would only be used for emergency take-offs and landings and would be striped (and marked) as "unusable" by all commercial (on a daily basis) and military aircraft (during exercises).

The runway extension(s) would have a 31-centimeter (cm) (12-inch) base and 36 cm (14 inches) of concrete. A substantial amount of structural fill would be required to extend the runway; that fill would be obtained from existing quarries or borrow pits on the island located approximately 6 kilometers (km) (4 miles [mi]) from the airfield. If existing quarries cannot provide all material necessary to expand the runway and construct other planned facilities, the quarry operator or USAF, as appropriate, would consult separately on the potential impacts on threatened or endangered species of expanding a quarry or opening and operating a new quarry.

Concrete needed to construct the runway and other elements would be mixed at existing locally contracted commercial facilities that operate concrete batch plants. Dry cement would be barged to Saipan using the supplier's existing supply chain, and then trucked from the Port of Saipan to the commercial concrete facility where the concrete would be mixed. Mixed concrete would be trucked from the commercial concrete batch facility to GSN.

Pavement Markings, Lighting, and Navigational Aids. To accommodate a runway extension, the existing medium-intensity approach lighting system with runway alignment indicator lights would be replaced with a 730 m (2,400-foot) approach lighting system with sequenced flashing lights on the west end of the runway. The distance-remaining markers, runway end identifier lights, and precision approach

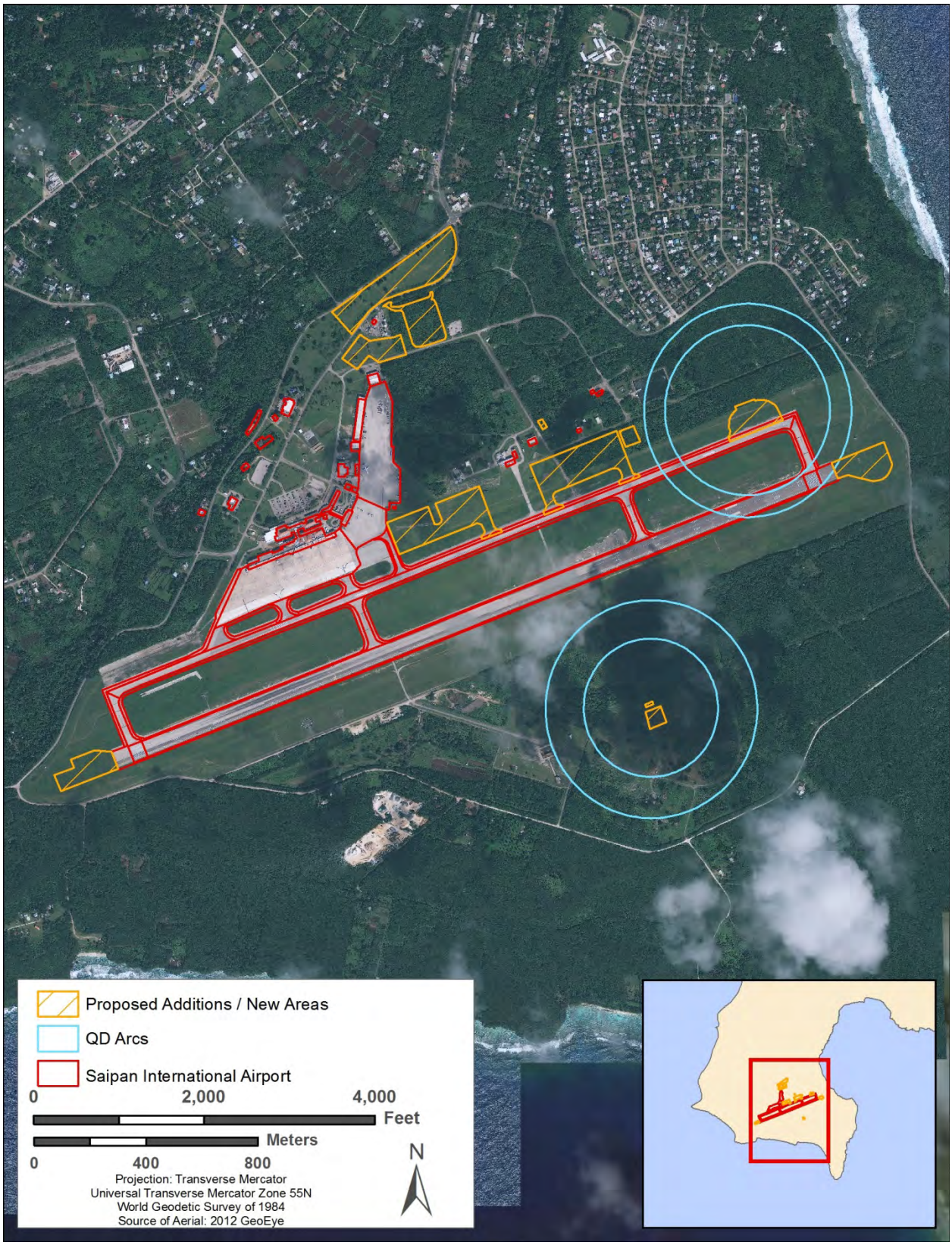

Figure 2-1. Overview of Proposed Facility Locations at GSN

path indicator systems also could be replaced and the middle marker and nondirectional beacon could need to be relocated. In addition, the glideslope and localizer would be relocated if the threshold locations are changed. The existing runway edge lights would be extended along the length of the proposed runway addition. All proposed lighting system improvements are in accordance with Unified Facilities Criteria 3-535-01, *Visual Air Navigation Facilities*.

Parking Aprons. To meet operational requirements, new ramp areas and parking aprons would be constructed adjacent to the GSN taxiway to accommodate up to 12 KC-135 aircraft. To avoid existing cultural resources, two separate parking aprons would be constructed adjacent to each other on the northern side of the existing taxiway (see **Figures 2-1** and **2-2**), with up to six KC-135 parking spots on each apron. The design strength would require a 31-cm (12-inch) base with 36 cm (14 inches) of concrete for the entire ramp expansion. Lights would be installed on the northeastern boundary to provide adequate security and operational lighting for night operations. Airfield lighting systems would include only the lighting facilities required to support the aircraft operational areas. Controls and equipment vault facilities would be included on the parking aprons as necessary to provide a complete and usable system.

Temporary Munitions Storage Area. A standard 7-Bar earth-covered magazine would be constructed to store munitions removed from diverted aircraft temporarily until the aircraft can return to its place of origin or planned destination. That magazine would be located approximately 535 m (1,750 feet) south of the centerline of the runway and 355 m (1,160 feet) east of the GSN Aircraft Rescue Training Area (see **Figure 2-3**). To adhere to minimum safety criteria and standoff distances in compliance with Department of Defense (DOD) Manual 6055.09-M, *Ammunition and Explosives Safety Standards*, and based on the 534-m (1,750-foot) distance between the magazine location and the nearest inhabited building (considered to be the runway centerline), the maximum quantity of munitions that could be stored in the magazine would be approximately 37,650 kilograms (kg) (83,000 pounds [lbs]) net explosive weight.

A multi-cube magazine also would be constructed as part of the temporary munitions storage area. The earth-covered magazine would be approximately 29 m (95 feet) by 11 m (35 feet) and the multi-cube magazine would be adjacent to the earth-covered magazine with a size of approximately 63 m (205 feet) by 63 m (207 feet). The existing road infrastructure that connects the aircraft rescue training area to the runway would be used as the primary munitions hauling route.

Hazardous Cargo and Arm/Disarm Pad. A hazardous cargo aircraft parking pad would be constructed and used to handle munitions and other hazardous cargo from diverted aircraft safely, and would also be used as an arm/disarm pad. To meet operational requirements and to adhere to minimum safety criteria and standoff distances in compliance with DOD Manual 6055.09-M, *DOD Ammunition and Explosives Safety Standards*, that pad would be located at the eastern end of the taxiway (see **Figure 2-4**) and the maximum net explosive weight stored there would not exceed 4,990 kilograms (11,000 pounds). The pad would be approximately 205 m (670 feet) by 113 m (370 feet) and would have a flow-through horseshoe design to allow aircraft to taxi directly onto and off of the hazardous cargo pad from the taxiway.

Aircraft Hangar. An aircraft hangar would be constructed adjacent to the parking ramp aprons (see **Figure 2-2**). This closed structure would be approximately 55 m (180 feet) by 60 m (195 feet), and would be located adjacent to the parking ramp and apron.

Maintenance Facility. A 1,830-square-m (6,000-square-foot) maintenance facility would be constructed north of the apron near an existing, pre-engineered building last used for commercial skydiving (see **Figure 2-2**). That facility would be used to support maintenance of aircraft and aircraft spares management. The facility would also be used to store pre-positioned equipment and materials needed for maintenance of aircraft used in exercises and humanitarian assistance and disaster relief efforts, including aerospace ground equipment and vehicles.

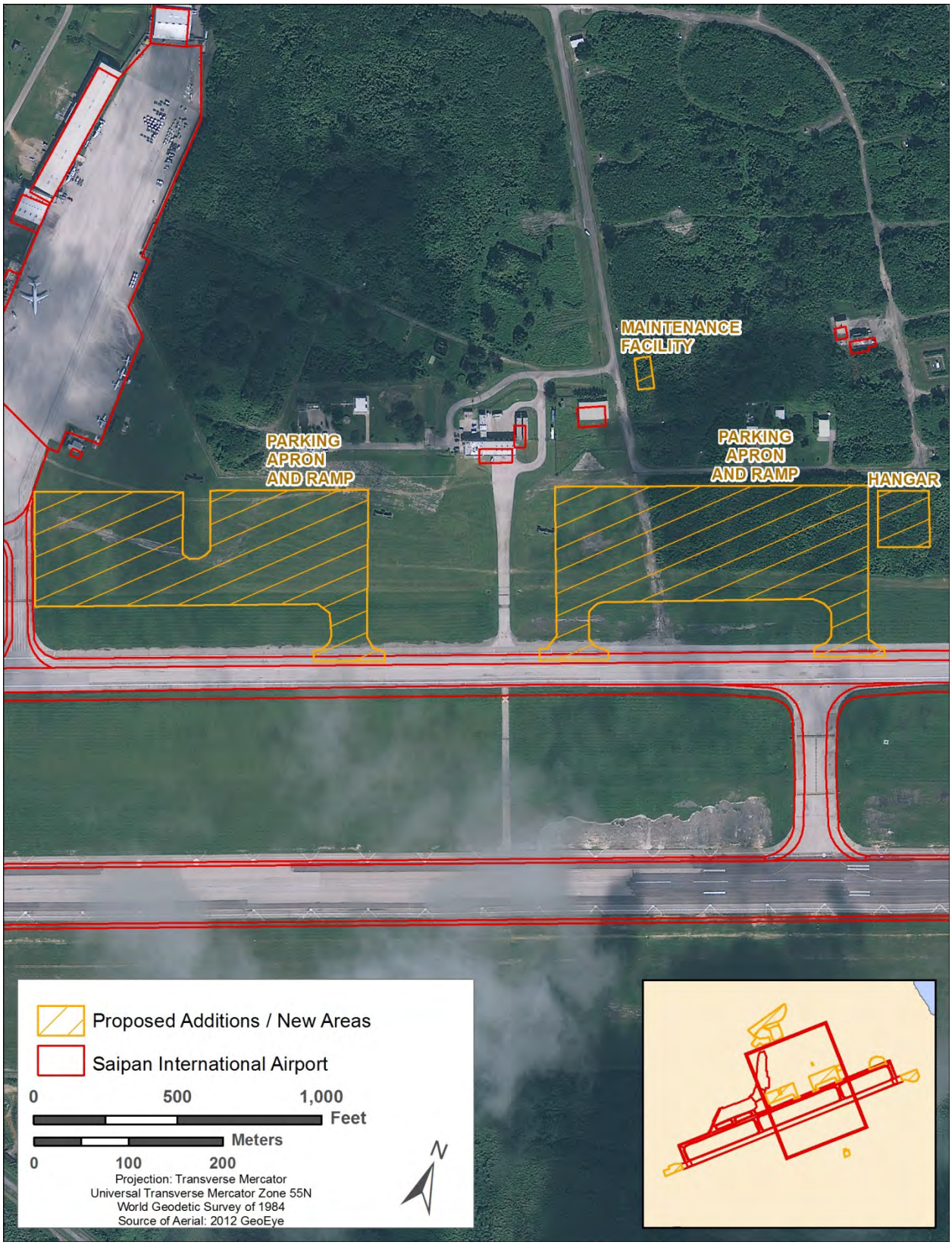

Figure 2-2. Proposed Parking Apron, Hangar, and Maintenance Facility

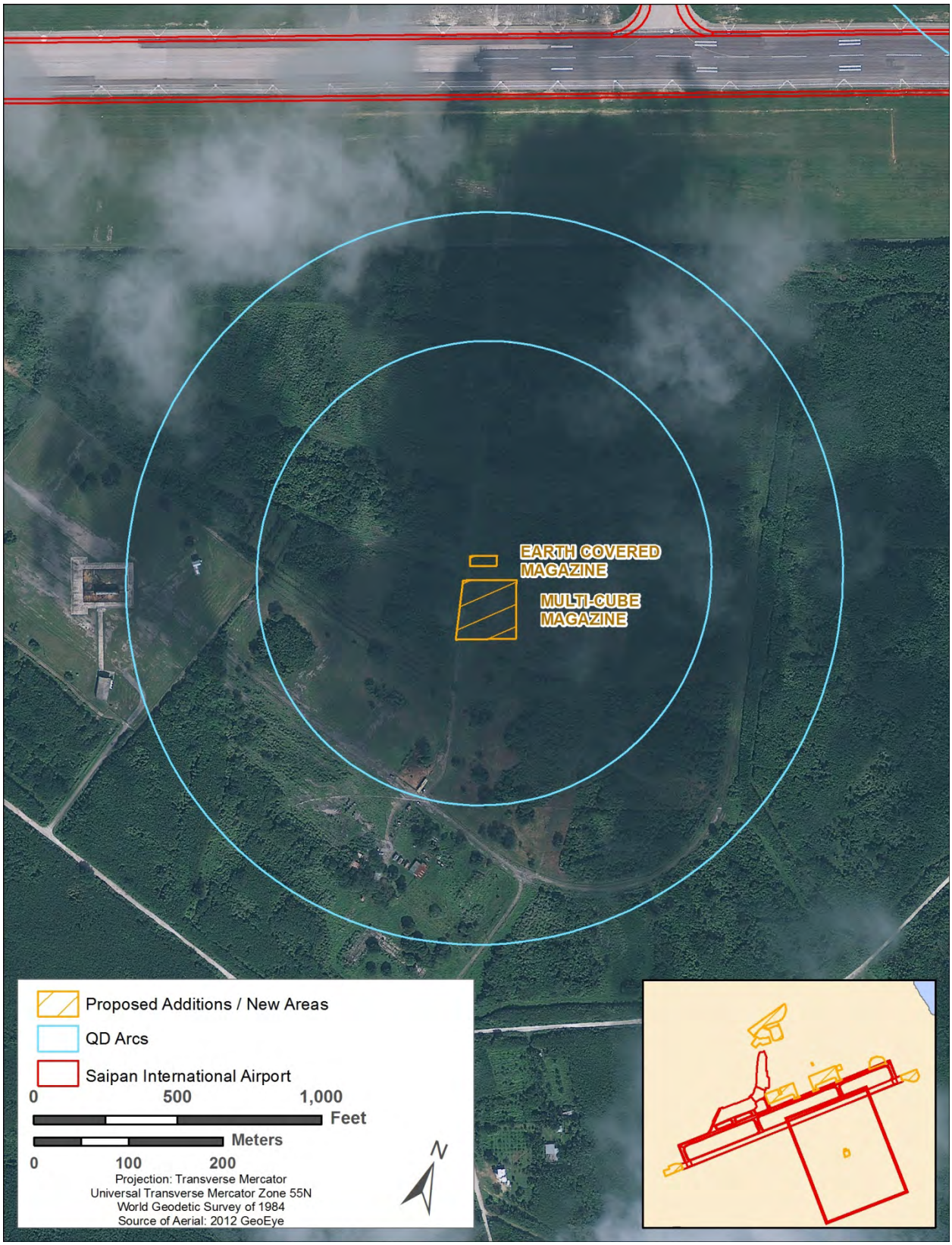

Figure 2-3. Proposed Temporary Munitions Storage Area

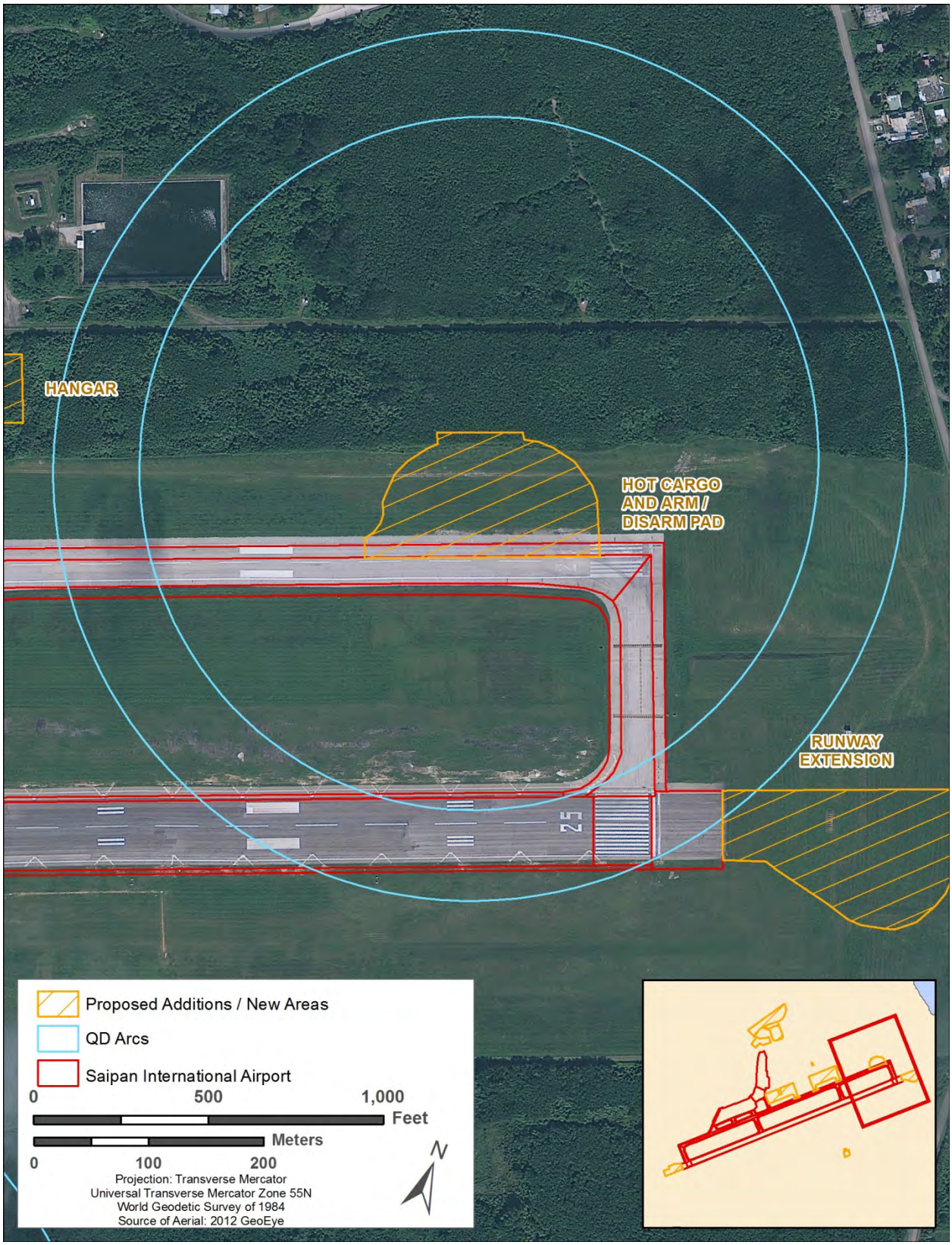

Figure 2-4. Proposed Hazardous Cargo Pad and Arm/Disarm Pad

Jet Fuel Receiving, Storage, and Distribution. The USAF plans to maintain a 30-day supply of jet fuel on Saipan. To maintain and deliver that amount of fuel, one DOD Standard Design 4.2-million-gallon, cut-and-cover or aboveground bulk storage tank and associated pumps, valves, filtration systems, emergency generator, and concrete work would be constructed to the north of existing airport facilities, and two 0.42-million-gallon, cut-and-cover or aboveground operating tanks also would be constructed near the bulk storage tank (see **Figure 2-5**). A transfer pumphouse, pumps, piping, filtration, valves, and a pantograph/hydrant servicing vehicle test station also would be installed near the storage tanks to support fuel storage and delivery.

Refueling capability for military aircraft would be provided at GSN using a combination of current capability and installing a standard DOD-designed 9,085 liters (2,400 gallons) per minute Type III hydrant refueling system adjacent to the new ramp. This refueling system would also tie into the existing commercial airport fuel supply line (with minimum disruption to commercial aircraft operations during construction periods) and the proposed parking apron expansion. One refueling hydrant would be installed at each of the planned KC-135 parking spots on the apron.

To support delivery of jet fuel on Saipan, two aboveground 2.1-million-gallon tanks with pump, filter, issue fill stand with two positions, and associated piping would be constructed near the seaport on federally leased land. The location is adjacent to the U.S. Army Reserve Center between Beach Road and Middle Road, inland from the existing commercial fuel storage area (see **Figure 2-6**). Existing infrastructure at the port would be used to offload fuel from vessels.

Billeting. Temporary billeting, including medical, transportation, and dining services, would be required for up to 700 personnel supporting aircraft operations during a divert landing, humanitarian assistance and disaster relief airlift, or joint military exercise event. The USAF plans to accommodate support personnel either by using commercial lodging on Saipan or temporarily installing a Basic Expeditionary Airfield Resources (BEAR) 550 Initial Housekeeping Kit.

If the USAF were to use commercial lodging, no additional construction or improvements would be needed at GSN. If the USAF were to use a BEAR kit for billeting, the kit would be established at GSN in accordance with Air Force Handbook 10-222 Volume 2 *Guide to Bare Base Assets.* The proposed area for the BEAR kit is approximately 5.0 ha (12.3 ac) and would require minimal vegetation clearing as it is located in a previously cleared and disturbed field (see **Figure 2-6**).

2.2 Implementation

After completion of construction, the USAF would use GSN periodically and temporarily for ground and air activities, aircraft support activities, and other airfield ground activities. A mix of joint cargo, tanker, fighter, and other aircraft could be diverted to or exercised from the airfield. Activities conducted there might include, but are not limited to, divert landings and take-offs, joint military exercises, jet fueling and storage, humanitarian assistance and disaster relief airlift staging including non-combatant evacuation operations, and billeting.

Divert Landings. Unscheduled aircraft landings, also known as "divert" landings would occur at GSN when other locations in the western Pacific, for example Andersen AFB, are unavailable for landing, such as during emergencies or natural disasters. Two types of unscheduled landings could occur there: diverts resulting from malfunctioning aircraft or similar emergency situations in the air, and diverts caused by natural or man-made disasters or activities at the airfield on the ground. Emergency divert landings, in accordance with the 36th Wing Instruction 13-204, would occur on an as-needed basis when an aircraft has malfunctioned or needs to land immediately due to an emergency. Other unscheduled diverts would

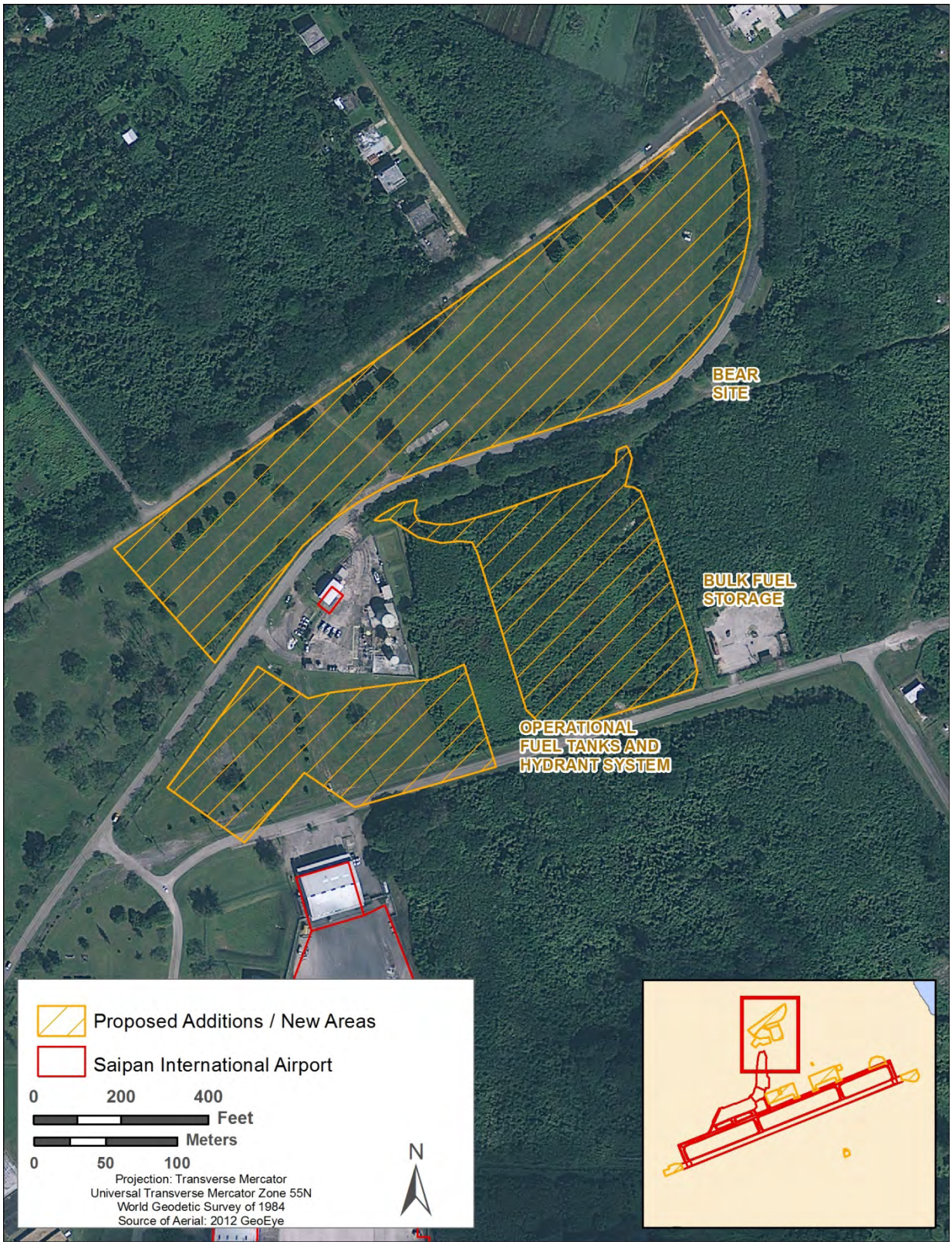

Figure 2-5. Proposed Fuel Tanks and Site of the Basic Expeditionary Airfield Resources 550 Initial Housekeeping Set Kit

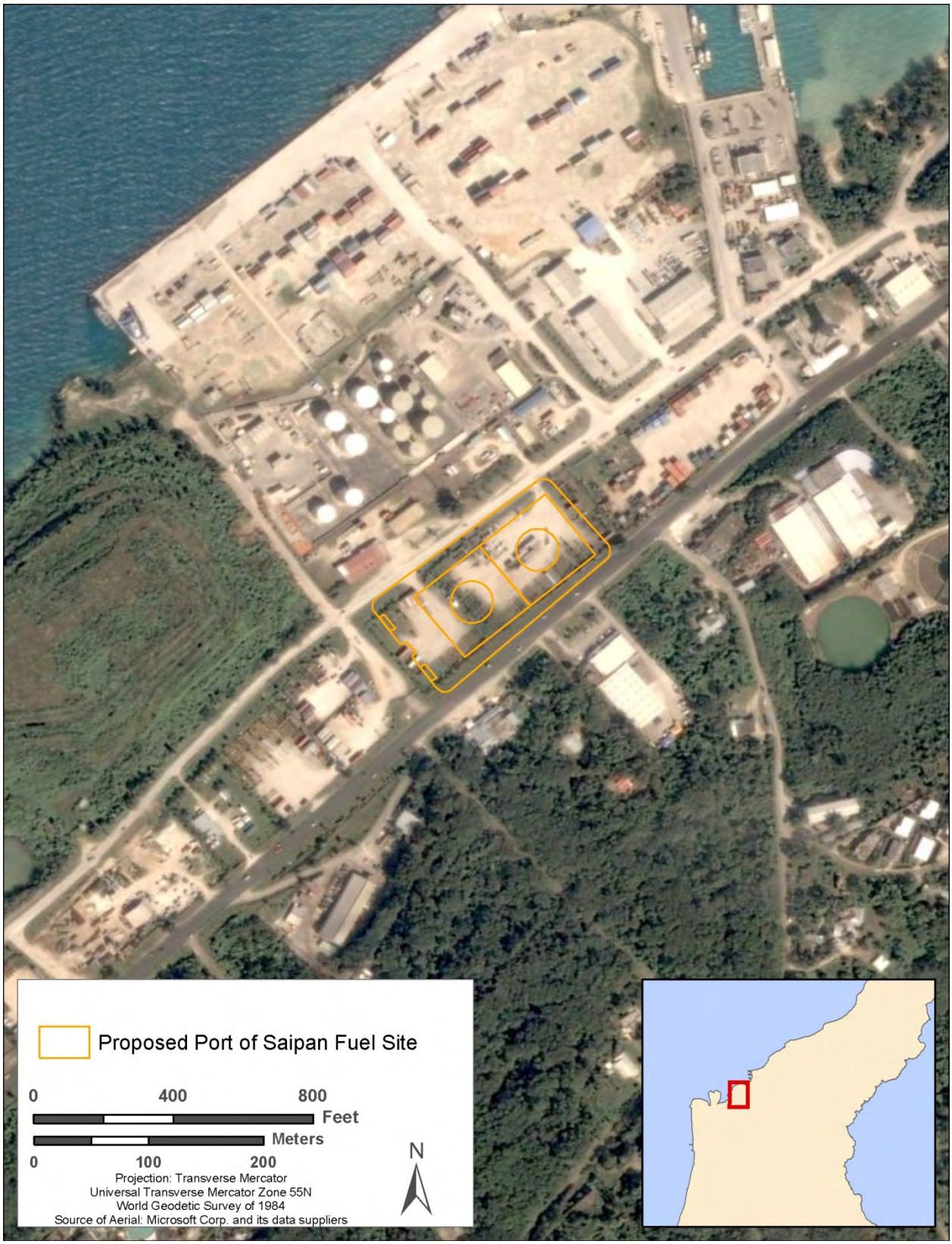

Figure 2-6. Proposed Site Plan for Two Fuel Tanks at the Port of Saipan

occur when the scheduled or planned location for landing is no longer accessible or operational, such as during typhoons, earthquakes, or other natural or man-made disasters. During a divert event when the scheduled or planned location for landing is no longer accessible or operational, the aircraft could continue to operate from the divert airport for up to 30 days until a more permanent home base is established. Aircraft conducting divert landings at the airfield could require refueling, maintenance, temporary munitions download and storage, and billeting support.

Humanitarian Airlift Staging. Humanitarian airlift staging, including non-combatant evacuation operations, would occur at GSN in the event of an emergency or disaster. Examples of this type of operation include Operation Tomodachi, the DOD relief effort implemented following the 2011 earthquake and tsunami in Japan and Operation Fiery Vigil following the 1991 eruption of Mount Pinatubo in the Philippines resulting in the evacuation of 20,000 people. For Operation Tomodachi, DOD officials reported that at least 20 U.S. naval ships, 140 aircraft, and approximately 20,000 military personnel were involved in humanitarian assistance and disaster relief efforts in and around Japan. At least 227 tons of relief supplies and humanitarian supplies were delivered to Japan. For Operation Fiery Vigil, Clark AFB was evacuated, and more than 20 U.S. Naval ships and their personnel sortied from Subic Bay Naval Base to evacuate more than 20,000 personnel to Andersen AFB for further transport to safe havens. This operation included around-the-clock arrivals from the Philippines, processing through U.S. Immigration screening, and around-the-clock departures to cities of safe haven.

Emergency responses to natural disasters of this nature would require pre-planning and exercising for the potential contingency. The joint military exercises required to prepare for and execute humanitarian airlift and disaster relief missions in real world situations are described in the following sections.

Joint Military Exercises. A limited number of scheduled joint, combined, and unit-level military training activities and exercises, as described and analyzed in the Mariana Islands Range Complex EIS (DON 2010) and associated Biological Opinions (USFWS 2010a; NMFS 2011), would occur at GSN. Those exercises would focus on real-world proficiency in sustaining joint forces and detecting, tracking, and engaging units at sea, in the air, and on land in response to a wide range of missions.

Joint military exercises are an important opportunity to bring together multi-service and multi-national platforms that do not always have the opportunity to train or exercise collectively. The U.S. Navy, USAF, U.S. Marine Corp, and military from other countries operate a variety of combat and combat-support aircraft designed to meet joint and multi-national training objectives for many exercises. These joint and multinational exercises are commonly referred to as joint-combined exercises. The United States routinely deploys forces to train in the western Pacific. Joint and combined exercises and training maintain a stabilizing presence in the region, while allowing U.S. forces and other nations to practice joint-combined skills in peacetime to prepare for success during a contingency.

Examples of typical combined exercises include Valiant Shield and Cope North. Valiant Shield occurs biannually and usually takes place in September. This exercise involves land and maritime forces from U.S. Navy, USAF, and U.S. Marine Corp, combined with multi-national forces, including observers from the Pacific Rim nations. Cope North occurs annually and typically takes place in mid-February and also might include multi-national forces. Aircraft and personnel participating in these combined exercises would be temporarily located at and operate from GSN for a combined total of about 60 days per year. No more than 700 personnel would participate in exercises at GSN at any given time, with a typical exercise population being a 12-ship fighter package of 145 to 170 personnel. In addition, unit-level training would also occur at GSN to exercise the capability to conduct divert landings and humanitarian airlift staging**.**

Jet Fuel Receiving, Storage, and Distribution. Receipt of jet fuel at the Port of Saipan would be through the existing port commercial facilities. The ability to store fuel and transfer fuel from the receiving port

to the airfield would be developed. Once these elements are constructed, as discussed in **Section 2.1.1.5**, they would be operated in support of divert landings, military exercises, and humanitarian assistance and disaster relief efforts.

Jet fuel would be offloaded at the existing fuel offloading facility at the Saipan seaport from vessels that are capable of navigating the harbor. Fuel would be offloaded into the two 2.1-million-gallon bulk storage tanks to be constructed adjacent to the seaport (see **Figure 2-6**). Standard fuel transfer tank trucks would be used to transfer fuel over existing paved roads from the port to the 4.2-million-gallon bulk storage tank at the airport. It would take six tank trucks (37,855 liters [10,000 gallons] each) 14 days working approximately 10 hours per day to fill the bulk storage tank at the airport. During scheduled joint military exercises, bulk jet fuel at the airport bulk tank would be transferred to one of two operating tanks, and the fuel would then be transferred to fuel tanker aircraft or other aircraft taking part in the exercises.

Billeting. Temporary billeting would be required for up to 700 personnel that would support aircraft operations at GSN during a divert landing, humanitarian airlift, or military exercise event. The USAF plans to accommodate support personnel either by using commercial lodging on Saipan or a BEAR kit. If the USAF were to use commercial lodging, the USAF and PACAF would enter into agreements with local hotels to accommodate personnel in commercial lodging during planned activities such as exercises, and local facilities and modular trailers would be used to conduct airfield support activities, such as administrative functions.

If the USAF were to use a BEAR kit for billeting, it would include about 45 billet tents, showers, latrines, 12 administrative shelters, 2 Power Pro shelters, an alert shelter, and a mortuary. A 920-kilowatt generator set and fuel bladders for the generators would also be installed.

The BEAR kit would be installed away from the existing taxiway and the future ramp, reducing the noise level at the BEAR base, but close enough to service and support the operation. The planned area is approximately 5.0 ha (12.3 ac) (see **Figure 2-6**). Access to the BEAR base would be through the service road used to monitor and maintain the water wells in the area. A perimeter fence with two vehicular gates and a pedestrian gate would surround the cantonment. An existing water source at the intersection of Flame Tree Road and Airport Access Road would be used. At a minimum, a 5-cm (2-inch) waterline would be installed to support the BEAR base from this location. A 21-cm (8-inch) sewer line with manholes spaced 107 m (350 feet) apart would be installed from the BEAR base to the sewer main line at the intersection of Flame Tree Road and Airport Access Road.

To operate the BEAR base on commercial power, a 1,200-kilovolt-ampere, 13.8-kilovolt to 4.16/2.4-kilovolt, pad-mounted transformer would be installed. Primary service to the transformer would require 3-phase, 15- kilovolt cable from the nearest overhead utility to the pad-mounted transformer.

2.3 Action Area

As described further in **Section 5.1**, loss and degradation of nightingale reed-warbler habitat and temporary disruption of breeding and other behaviors could occur at and adjacent to GSN during construction of facilities and during implementation of divert activities and exercises. Noise from military aircraft participating in divert activities and exercises could also temporarily disrupt the behavior of nightingale reed-warblers under the flight paths at GSN. Mitigation for adverse impacts include financial support provided by the USAF to conserve and manage nightingale reed-warbler habitat at the Saipan Upland Mitigation Bank, located in the Marpi region on the northeastern portion of Saipan. Because adverse impacts and mitigation could occur on the northern and southern portions of Saipan, the action area is defined as the entire Island of Saipan.

2.4 Impact Minimization and Conservation Measures

Construction Impacts. The USAF will implement all measures to minimize impacts to nightingale reed-warbler that are required by the *Programmatic Biological Opinion Regarding the Reestablishment, Management, and Use of the Saipan Upland Mitigation Bank, Saipan* (USFWS 2008a). Those impact minimization measures, as presented in the SUMB Biological Opinion and modified as described by USFWS personnel during a meeting in July 2012, are presented in **Table 2-2**. In addition, the USAF will not locate laydown yards or other temporary construction facilities in nightingale reed-warbler habitat or within the 50-m [160-foot] buffer zone around territories described in **Section 4.3**.

Table 2-2. Impact Minimization Measures Required by the Saipan Upland Mitigation Bank Biological Opinion.

No.	Mitigation Measure
1	Prior to vegetation clearing, a biologist experienced in locating nightingale reed-warbler nests will search the area for active nests. If any active nests are located, they will be avoided using a 50-m (164-foot) buffer until the nest is abandoned or has actively fledged.
2	When possible, the use of very noisy (greater than 60 decibels A-weighted) heavy machinery should be limited to the non-active or non-peak breeding seasons or temporary noise barriers or buffer zones should be installed to protect nightingale reed-warblers using buffer zones or areas of connectivity.
3	When actions occur during the breeding season, a biologist experienced in documenting changes in bird behaviors should observe occupied nests during the use of heavy equipment. The biologist should record behavior before, during, and after noisy equipment use and document noise levels with a decibel meter. At the end of equipment use, the biologist should provide a behavioral observation report to the USFWS.
4	Adequate plastic construction fencing or brightly colored flagging will be placed and maintained around any avoided habitat (including buffer areas or adjacent parcels) to prevent impacts from construction equipment and personnel.
5	All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts on these species and their habitat.
6	All on-site personnel will receive instruction regarding the brown treesnake (*Boiga irregularis*) and what to do immediately in case of a sighting.
7	A Hazard Analysis and Critical Control Point Plan or similar approach that results in an implementation plan will be developed. The plan will incorporate measures to ensure that invasive species, including the brown treesnake, are not transported to Saipan via project materials or equipment. This plan will be reviewed by the USFWS to ensure the actions to eliminate or reduce risks are sufficient.
8	A qualified biologist will inspect all construction-related activities to ensure that no take of nightingale reed-warbler or destruction of their habitat occurs that is not authorized by the Biological Opinion. The biologist will have the authority to stop all activities that could result in such take or destruction until appropriate corrective measures have been completed. The biologist also will report immediately any unauthorized impacts to the USFWS and CNMI Division of Fish and Wildlife.
9	A brief summary report will be provided to the USFWS within 30 days of project implementation to document implementation of any fencing, buffer zones, and minimization measures.

Source: USFWS 2008a

Habitat Loss. The USAF will purchase one credit from the SUMB for each nightingale reed-warbler territory that is cleared of vegetation during project construction. As required by the SUMB Biological Opinion, if more than 29 percent of a territory is cleared or otherwise destroyed, the USAF will purchase one credit to compensate for the loss of that territory. If less than 29 percent of a territory is directly affected, the USAF will purchase a partial credit equal to the proportion of the territory cleared of vegetation or otherwise disturbed.

As described in **Section 2**, the USAF plans to construct facilities at GSN in stages and, depending on mission needs and Congressional authorization and appropriations, some project elements might not be completed on Saipan. The USAF, therefore, cannot state with certainty at this time whether or how many territories would be directly or indirectly affected by construction of facilities at GSN. Prior to the construction start each fiscal year or phase of construction, the USAF will present a construction plan to the USFWS and CNMI Division of Fish and Wildlife and will purchase the number of credits required to mitigate for the direct impacts of construction activities planned for that year or phase.

To mitigate for the indirect impacts on nightingale reed-warblers during the implementation phase of this project (see **Section 5.1.2**), the USAF will purchase credits or otherwise fund conservation activities at the SUMB conservation area as required in the SUMB Biological Opinion. That mitigation will be implemented prior to initiation of the first training exercise at GSN that results in the level of indirect impacts to be mitigated, as determined during the formal consultation.

Invasive Species. To reduce or eliminate the spread of brown treesnakes and other nonnative species during development, maintenance, and operation of facilities at GSN, the USAF will develop, submit to the USFWS for review, and implement Hazard Analysis and Critical Control Point Plans (or equivalent) as required by the SUMB Biological Opinion, including plans for receipt of materials and equipment shipped to Saipan for construction and implementation of the project. Those Plans, and all associated implementing instructions developed by the USAF, Joint Region Marianas, and other involved military organizations, will be compliant with the invasive species interdiction and control requirements in the Duncan Hunter National Defense Authorization Act, Public Law 110-417, Section 316 (2009), and DOD Defense Transportation Regulations, Chapter 505 protocols. At a minimum, those plans and implementing instructions will address the following as appropriate, based on the specifics of each activity.

- One-hundred percent inspection of all outgoing aircraft and materials from Andersen Air Force Base and Naval Base Guam, as currently required by Joint Region Marianas Instruction 5090.4, using trained quarantine officers and dog detection teams, and redundant inspections conducted on Saipan during project development and training activities.
- Protocols and procedures for inspection of commercial materials and equipment being shipped from elsewhere on Guam, and from other locations, to GSN.
- Use existing or new, temporary or permanent, snake-free quarantine areas on Saipan for inspection of cargo traveling from Guam to Saipan when applicable. Those areas will be subject to (1) multiple day and night searches with appropriately trained interdiction canine teams that meet performance standards, (2) snake trapping, and (3) visual inspections for snakes.
- Support of rapid response actions to brown treesnake sightings at GSN or the fuel facility at the Port of Saipan.
- Invasive species awareness training for all military and contractor personnel.

As stated in **Section 1.2**, this biological assessment does not address air warfare and air logistics training that would occur in the Mariana Islands Range Complex or elsewhere by aircraft temporarily operating

from GSN. Impacts on ESA-listed species from those activities, and the requirements for the control and interdiction of invasive species, have been addressed in Biological Opinions developed by the U.S. Fish and Wildlife Service (USFWS 2010a) and National Oceanic and Atmospheric Administration Fisheries Service (formerly National Marine Fisheries Service) (NMFS 2011). Section 7 consultations also have been completed, and requirements for invasive species control and interdiction have been developed, for other ongoing for military training and operations in the Mariana Islands (e.g., USFWS 2006a, 2008b). Those control and interdiction requirements include the following.

- Direct routing of personnel and cargo to GSN to avoid Guam seaports and airfields when possible
- Inspections of all outgoing aircraft and equipment from Guam and redundant inspections on Saipan
- Establishment and operation of snake-free quarantine areas when applicable
- Environmental education of personnel
- Self inspection of equipment by service members
- Pathway analyses for all activities or groups of activities
- Involvement of the USFWS, Department of Agriculture, and other agencies in the development and implementation of protocols and practices
- Participation in the development and implementation of the Regional Biosecurity Plan.

The above requirements for control and interdiction of invasive species are incorporated into implementing instructions developed by Joint Region Marianas and other involved military organizations, and those instructions will be followed for all military training activities and exercises on and from GSN. The instructions are updated as necessary to incorporate changes resulting from new policies and practices and to include revised or additional requirements resulting from applicable Section 7 consultations.

The USAF acknowledges that there is a limited availability of inspectors, trained dogs, and quarantine facilities and equipment on Guam and in the CNMI. Planning for training exercises generally begins months prior to implementation of an exercise, and planning for complex training that would require a substantial number of inspectors, quarantine areas, or other personnel or equipment for control and interdiction of invasive species generally would begin more than a year in advance of the exercise. During that planning period, the U.S. Department of Agriculture and CNMI Department of Land and Natural Resources (the agencies responsible for conducting searches for and interdiction of brown treesnakes on Guam and the CNMI, respectively), USFWS, USAF, Joint Region Marianas staff responsible for managing their brown treesnake program, CNMI Department of Lands and Natural Resources staff, and other participants will cooperatively identify the inspection and interdiction requirements for the exercise, including the number of trained quarantine officers and dog detection teams. The USAF and those other agencies will also develop plans to ensure that inspection personnel are available and that all requirements can be met, and will identify the support that the USAF will need to provide for the inspections.

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3. Status of Threatened and Endangered Species on Saipan

This section summarizes information on the status and ecology of four threatened or endangered species that occur on Saipan. It does not discuss the Mariana fruit bat and Micronesian megapode, because, as described in **Section 1**, the USAF has determined that developing divert capabilities and conducting divert activities and exercises at GSN will have no affect on those species.

3.1 Nightingale Reed-Warbler

The following description of the nightingale reed-warbler comes primarily from the following sources, which are incorporated by reference.

- Recovery Plan for the Nightingale Reed-Warbler (USFWS 1998b)
- Programmatic Biological Opinion Regarding the Reestablishment, Management and Use of the Saipan Upland Mitigation Bank, Saipan (USFWS 2008a)
- Nightingale Reed-Warbler 5-Year Review Summary and Evaluation (USFWS 2010b).

Section 4.3 describes the results of surveys conducted around GSN to determine the abundance of nightingale reed-warblers in areas that could be directly and indirectly affected by the project.

Legal Status. The nightingale reed-warbler was listed under the ESA as endangered in 1970 (35 FR 18319). No critical habitat has been designated for this species. The current recovery plan for the nightingale reed-warbler was published in 1998 (USFWS 1998b).

Description and Taxonomy. The nightingale reed-warbler is approximately 16 to 21 cm (6 to 8 inches) long, grey to olive brown above, pale yellow below, and has a relatively long bill. Males are slightly larger than females. This species is in the marsh warbler family Acrocephalidae (USFWS 2008a).

Distribution and Abundance. There are three recognized subspecies of nightingale reed-warbler: *A. l. luscinia* on Guam, Saipan, and Alamagan; *A. l. nijoi* on Aguiguan; and *A. l. yamashinae* on Pagan. There is prehistoric evidence that this species also occurred on Tinian, but it does not occur there now. Cibois et al. (2011) suggested that the nightingale reed-warbler on these islands might be separate species.

A volcanic eruption on Pagan in 1981 destroyed the only known habitat on that island and *A. l. yamashinae* is believed to be extinct. *A. l. nijoi* on Aguiguan are rare and might also be extinct. *A. l. luscinia* have been extirpated from Guam and now occur only on Saipan and Alamagan (USFWS 2008a, 2010b). Less than 500 individuals are believed to occur on Alamagan (USFWS 2010a, p. 40).

Camp et al. (2009) summarized the results of islandwide forest bird surveys on Saipan over the previous three decades and reported that the number of nightingale reed-warbler detections had decreased from 287 in 1982, to 190 in 1987, to 118 in 2007. Density estimates per square kilometer of suitable habitat subsequently declined as a result of decreased detections in the respective survey years (58 birds, 1982; 40 birds, 1987; 23 birds, 2007). Based on the 2007 islandwide forest bird survey, the population estimate for nightingale reed-warblers on Saipan is 2,742 (Camp et al. 2009).

Habitat. Nightingale reed-warblers are found on Saipan in a variety of vegetation associations and are most abundant in areas of dense understory, including open, secondary, and tangantangan forests; elephant grass (*Pennisetum purpureum*) meadows; marshes; and wetland and forest edges. The species is uncommon or absent from residential areas, golf courses, limestone forests, beach strand, and swordgrass

(*Miscanthus floridulus*) savannah (Craig 1992, Mosher and Fancy 2002, USFWS 2008a, Camp et al. 2009).

Diet. The nightingale reed-warbler feeds primarily on insects and their larvae. Their diet also includes geckos, lizards, spiders, and snails. Nestlings are fed a variety of food items, including small caterpillars, large spiders, grasshoppers, skinks, geckos, ants, beetles, millipedes, moths, and praying mantids (USFWS 1998b).

Threats. Habitat loss and degradation is a primary threat to the nightingale reed-warbler on Saipan. Intensive agriculture on that island during the first half of the 20th century caused the loss of a substantial amount of wetland and upland habitat for this species. Much of that land has since reverted to second-growth forest that is used by reed-warblers. However, many second-growth forests have been and are being converted to urban development to support the large increase in the human population on Saipan. The human population increased by 429 percent from 1980 to 2000 (Camp et al. 2009, USFWS 2010b).

The establishment of the brown treesnake on Saipan would have serious impacts on this species. USFWS (2010b) stated that the spread of the brown treesnake to Saipan would likely cause the extirpation of nightingale reed-warblers from that island. The brown treesnake was the primary cause of the extirpation of forest tree birds, including the nightingale reed-warbler, from Guam.

Predation by introduced species such as feral cats (*Felis catus*) and rats (*Rattus* spp.) could be reducing the reproductive success of nightingale reed-warblers. Seventy-five percent of 28 active nests that failed were preyed upon by those or other species (USFWS 1998b, 2010b).

Other threats to this species include environmental contaminants in wetland habitat, fire in upland habitat, and the possible spread of the west Nile virus to Saipan (USFWS 1998, 2010b).

3.2 Mariana Common Moorhen

The following description comes primarily from the following sources, which are incorporated by reference.

- Mariana Common Moorhen Recovery Plan (USFWS 1992)
- Distribution and Abundance of the Mariana Subspecies of the Common Moorhen (Takano and Haig 2004)
- Mariana Common Moorhen 5-Year Review Summary and Evaluation (USFWS 2009b).

Legal Status. The Mariana common moorhen was listed under the ESA as endangered in 1984 (49 FR 33881). No critical habitat has been designated for this species. The current recovery plan for the common moorhen was published in 1992 (USFWS 1992).

Description and Taxonomy. The Mariana common moorhen is a slate-black member of the Rallidae family, and is about 36 cm (14 inches) in length. The distinguishing physical characteristics of adult birds include a red bill and frontal shield, white undertail coverts, a white line along the flank, and long olive-green legs with large unwebbed feet. Males and females are nearly identical in appearance and are difficult to distinguish from each other (USFWS 1992).

Distribution and Abundance. This species occurs on Guam, Tinian, Saipan, and rarely on Rota. The USFWS (1992) identified two primary wetlands on Saipan that are used by common moorhens: Lake

Susupe and Puntan Muchot/Garapan. Takano and Haig (2004) counted 154 moorhen at 18 locations on Saipan in 2001.

Habitat. The moorhen inhabits emergent vegetation of natural and man-made freshwater lakes, marshes and swamps. The key characteristics of moorhen habitat appear to be a combination of deep (greater than 60 cm [24 inches]) marshes with robust emergent vegetation and equal areas of cover and open water. This species is known to be wary and closely associated with cover provided by edge vegetation (USFWS 1992, Takano and Haig 2004).

Diet. Moorhens feed on plant and animal matter in or near water. Observers have noted grass, adult insects, and insect larvae in moorhen stomachs. Moorhen are probably opportunistic feeders, so their diet varies among areas (USFWS 1992).

Threats. The loss of wetlands is the most important factor in the decline of common moorhens. Many wetlands in the Mariana Islands have been filled or dredged for commercial or residential development. Additionally, there has been a decline of traditional wetland agricultural practices such as taro and rice cultivation, which has diminished the amount of wetlands available to the moorhen. Some wetlands have experienced accelerated sedimentation due to land clearing, road building, grassland fires, and other human activities. Predation by nonnative species such as rats and monitor lizards (*Varanus indicus*) could also be adversely affecting this species (USFWS 1992, 2009b).

3.3 Mariana Swiftlet

The following description of the Mariana swiftlet comes primarily from the following sources, which are incorporated by reference.

- Recovery Plan for the Mariana Islands Population of the Vanikoro Swiftlet (USFWS 1991)
- Relative Abundance and Distribution of Mariana Swiftlets in the Northern Mariana Islands (Cruz et al. 2008)
- Mariana Swiftlet or Chachaguak 5-Year Review Summary and Evaluation (USFWS 2010c).

Legal Status. The Mariana swiftlet was listed under the ESA as endangered in 1984 (49 FR 33881). No critical habitat has been designated for this species. The current recovery plan for the Mariana swiftlet was published in 1991(USFWS 1991).

Description and Taxonomy. The Mariana swiftlet has sooty black upper parts with a slightly paler rump. The underparts are dark gray but with a brownish tinge. Some white is present at the base of the feathers in the loreal region. The plumage of both sexes is alike. The average weight of adult swiftlets is 7.4 grams (0.3 ounces). The swiftlet is in the Apodidae family (USFWS 1991).

Distribution and Abundance. Swiftlets currently are known to occur on Guam, Aguiguan, and Saipan (Cruz et al. 2008). The population in 2010 was estimated to be more than 5,000, with most located on Saipan. This species currently nests in at least 10 caves on Saipan (MES 2012).

Habitat. On Saipan, swiftlets nest and roost in caves and their preferred foraging habitats include areas over forests, clifflines, grassy hills, and grassy ravines (USFWS 1991, 2010c).

Diet. Swiftlets mostly eat insects that they catch while in flight (USFWS 1991). On Aguiguan, swiftlets consumed primarily hymenopterans and hemipternas (Valdez et al. 2011).

Threats. Human disturbance at nesting colonies is an important threat to this species. Other threats include predation by brown treesnakes (on Guam) and other nonnative predators, and the presence of cockroaches and wasps in nest caves (USFWS 1991, 2010c).

3.4 Green Sea Turtle

The following description of the green sea turtle comes primarily from the following sources, which are incorporated by reference.

- Recovery Plan for U.S. Pacific Populations of the East Pacific Green Turtle (NMFS 1998)
- An Assessment of the Sea Turtles and Their Marine and Terrestrial Habitats at Saipan, Commonwealth of the Northern Mariana Islands (Kolinski et al. 2001)
- Green Turtle Nesting Sites and Sea Turtle Legislation Throughout Oceania (Maison et al. 2010).

Legal Status. The green sea turtle was classified as threatened under the ESA in 1978. The breeding populations in Florida and the Pacific coast of Mexico are classified as endangered; elsewhere the species is listed as threatened (43 FR 32800). No critical habitat has been designated for this species in the Pacific Ocean. The current recovery plan for the Pacific population of the green turtle was published in 1998 (NMFS 1998).

Description and Taxonomy. Green sea turtles have a smooth top shell with shades of black, gray, green, brown, and yellow; their bottom shell is yellowish white. Adults can weigh 136 to 158 kg (300 to 350 lbs) and hatchlings weigh about 0.02 kg (0.05 lbs). Adults can reach 1 m (3 feet) in length and hatchlings are about 5 cm (2 inches) long. Green sea turtles are in the Cheloniidae family.

Distribution and Abundance. The green turtle is globally distributed and generally found in tropical and subtropical waters along continental coasts and islands between 30° north and 30° south latitude. This species generally nests on Saipan from March through August with some year-round nesting documented. It is estimated that possibly fewer than 10 individual turtles nest annually on Saipan, Tinian, and Rota. In 1999, turtle activity was documented at eight beaches, with six nests found on a total of three beaches (Kolinski et al. 2001). Monitoring of nesting activity on Saipan since 1999 has documented 4 to 18 nests per year. At least five beaches on Saipan have been monitored somewhat consistently over the past 5 years: Bird Island, Wing, Tank, Lao Lao Bay, and Obyan beaches (Maison et al. 2010).

Habitat. Green turtles primarily use three types of habitat: beaches for nesting, open ocean convergence zones, and coastal areas for feeding.

Threats. The principal cause of the historical, worldwide decline of the green turtle is long-term harvest of eggs and adults on nesting beaches and harvest of juveniles and adults on feeding grounds. These harvests continue in some areas of the world and compromise efforts to recover this species. Incidental capture in fishing gear, primarily in gillnets, but also in trawls, traps and pots, longlines, and dredges is a serious ongoing source of mortality. Green turtles are also threatened in some areas of the world by the disease fibropapillomatosis.

4. Environmental Baseline

This section describes the current environment in the action area as influenced by past and present impacts of human activities. The current environment, impacts of human activities on Saipan, and current status of the nightingale reed-warbler on the island, have been described in detail in the following reports, which are incorporated here by reference.

- Recovery Plan for the Nightingale Reed-Warbler (USFWS 1998b)
- Final Biological Opinion for the Proposed Rehabilitation of Runway 07/25 and Relocation of Water Catchment Reservoir, Saipan International Airport (USFWS 2006b)
- Programmatic Biological Opinion Regarding the Reestablishment, Management and Use of the Saipan Upland Mitigation Bank, Saipan (USFWS 2008a)
- Nightingale Reed-Warbler 5-Year Review Summary and Evaluation (USFWS 2010b)
- Biological Report: Saipan International Airport Project Site, Saipan, CNMI (MES 2012)
- Draft EIS for Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands (USAF 2012).

To support delivery of jet fuel on Saipan, two aboveground 2.1-million-gallon tanks and associated infrastructure would be installed on previously cleared and developed land at the Port of Saipan (see **Figure 2-6**). A portion of that flat site has a deteriorating asphalt surface, and fine limestone gravel has been spread across most of the remainder of the site. There is a thin stand of dense, weedy vegetation around the perimeter of the site; vegetation in the remainder of the area is sparse. This developed site does not contain suitable habitat for nightingale reed-warblers or other ESA-listed species, and is not described further in this section.

The remainder of this section describes in detail the environment on and around GSN, and the results of surveys conducted to determine the presence of ESA-listed species and other biological resources in that area. GSN is situated on approximately 285 ha (700 ac) in the southern portion of the Saipan (see **Figure 2-1**). It is owned and operated by the Commonwealth Ports Authority under the Commonwealth Ports Authority Act (Public Law 2-48), which was enacted in October 1981. The 2002 Saipan International Airport Master Plan outlines the development strategy for the airport (Commonwealth Ports Authority 2002). GSN facilities currently include a 2,650-m- (8,700-foot-) long runway and adjacent taxiway and parking ramps and a terminal, cargo-handling facility, parking lots, drainage detention basin, and other operational facilities to the north of the runway. GSN property to the south of the runway is undeveloped and leased for cattle grazing. The land surrounding the airport is used primarily for agricultural, recreation, and conservation.

Large portions of areas to the north and south of the current airport, including areas where the USAF would construct facilities and implement divert activities and exercises, were developed before and during World War II as aircraft parking areas, taxiways, and other airfield-related structures. Degraded aircraft parking surfaces and other structures are still visible in some areas, although much of that area is now covered with tangantangan.

The most recent development at GSN that affected listed species, and required consultation under Section 7 of the ESA occurred after 2006. That consultation covered rehabilitation of the GSN runway and relocation of a water catchment reservoir from between the runway and taxiway to its current position to the north of the runway. The USFWS estimated that disturbance of about 10 ha (25 ac) for those activities would directly affect nightingale reed-warblers in two territories and indirectly affect

reed-warblers in three other territories (USFWS 2006b). No other listed threatened or endangered species were adversely affected by the project.

4.1 Vegetation

Vegetation communities at and around GSN were mapped and characterized during field surveys conducted during October 2011. Vegetation community types observed at and surrounding the sites where construction and improvements would occur include tangantangan forest, mowed fields, park areas, and lands used for agriculture and grazing (see **Figure 4-1**), and are described in the following paragraphs.

Tangantangan Forest. Canopy vegetation in tangantangan forest is characterized by a near monoculture of nonnative tangantangan. The following forest tree species were most commonly observed within those forests: ahgao (*Premna obtusifolia*), hodda, pago (*Hibiscus tiliaceus*), sumak, lada *(Morinda citrifolia),* and papaya; and nonnative trongkon-kalaskas (*Albizia lebbeck)* and atbut or flame tree (*Delonix regia*). The understory of tangantangan forest consists largely of nonnative herbaceous weeds. Common species include coral berry (*Rivina humilis*), rosary pea (*Abrus precatorius*), Chinese violet (*Asystasia gangetica*), and achyranthes (*Achyranthes canescens*). Gaps in the tangantangan forest and some areas of canopy are blanketed by a layer of vines. These vines include the native akankang tasi (*Canavalia rosea*); and the nonnative bittervine (*Mikania micrantha*), abubo (*Stictocardia tilifolia*), coral vine (*Antigonon leptopus*), and ivy gourd (*Coccinia grandis*). Vines present in the area are stimulated by the opening up of the canopy after storm disturbances and can form oppressive vine mats that retard the growth of, or kill, native vegetation.

Mowed Fields. Mowed field habitat consists mainly of introduced grasses and herbaceous ground cover. These fields occur between and around the airfield runways, taxiways, parking ramps, and associated disturbed sites. They are characterized by grasses, including Bermuda grass (*Cynodon dactylon*), crowfoot grass (*Dactyloctenium aegyptium*), broadleaf carpetgrass (*Axonopus compressus*), golden beardgrass (*Chrysopogon aciculatus*), (*Chloris* sp.), and herbaceous weeds including the sensitive plant, shameplant (*Mimosa pudica*), tropical lucerne (*Stylosanthes guianensis*), and white moneywort (*Alysicarpus vaginalis*).

Park Areas. Parks at and near GSN are characterized by areas with grass that is mowed close to ground level and that have narrow strips of ornamental trees and shrubs that have been planted primarily along road edges. Grasses in park areas are characterized by Bermuda grass and golden beardgrass. Ornamental trees that have been planted along road edges are characterized by atbut or flame tree and several species of plumeria (*Plumeria* spp.). Hodda also occurs at several locations in the park areas. Shrub species planted along road edges are characterized by bougainvilla (*Bougainvilla* sp.), lantana (*Lantana camara*), and several species of hibiscus (*Hibiscus* spp.).

Agriculture/Grazing. Areas used for agriculture and grazing are located south of GSN within and near the area where the munitions storage area would be located. That location is characterized by scrub habitat with sparse trees. Adjacent areas include stands of tangantangan, grazed land, scrub habitat, and agricultural plots that are fallow or planted with local crops. Grazed areas are characterized by a sparse occurrence of trees including atbut or flame tree and mango (*Mangifera indica*) with a minor occurrence of Ahgoa. Scrub habitat has a mix of shrub and herbaceous species dominated by lantana, Jack-in-the-bush (*Chromolaena odorata*), nettleleaf velvetberry (*Stachytarpheta urticifolia*), and romerillo (*Bidens alba*). Tangantangan occurs as short saplings scattered through the scrub habitat.

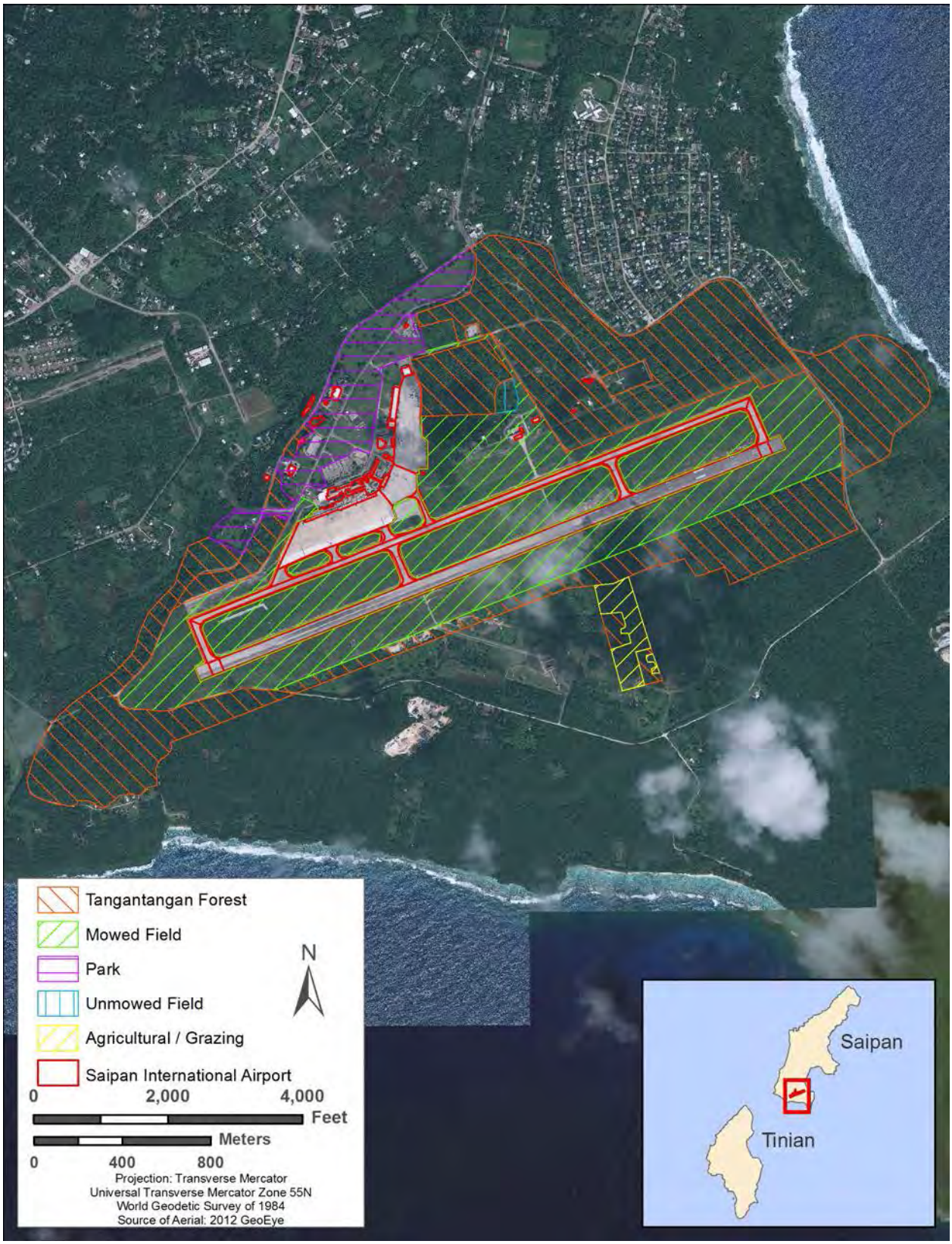

Figure 4-1. Vegetation Communities at GSN

4.2 Wildlife

Characterization of fauna occurring in and around GSN was based on incidental observation of species during vegetation mapping conducted in October 2011 (USAF 2012) and during surveys for nightingale reed-warblers and other avian species conducted from late January through early April 2012 (MES 2012). **Figure 4-2** shows the areas surveyed at and surrounding GSN in 2012.

Birds. During March 2012, 18 point-count surveys for birds were conducted in areas surrounding the airfield (MES 2012). Those surveys were conducted between 0600 and 1000 hours. A total of 762 detections of birds of 14 species were recorded. The most commonly detected bird species was the bridled white-eye (*Zosterops conspicillatus)*, which accounted for 28 percent of avian observations. Other species detected, in descending order of abundance, include the black noddy (*Anous minutus*), white tern (*Gygis alba*), rufous fantail (*Rhipidura rufifrons*), island collared dove (*Streptopelia bitorquata*), Micronesian starling (*Aplonis opaca*), orange-cheeked waxbill (*Estrilda melpoda*), Micronesian myzomela (*Myzomela rubratra*), golden white-eye (*Cleptornis marchei*), white-throated ground dove (*Gallicollumba xanthonura*), collared kingfisher (*Todiramphus chloris*), Mariana fruit dove (*Ptilinopus roseicapilla*), nightingale reed-warbler, and yellow bittern (*Ixobrychus sinensis*). During those surveys, observers actively searched for Mariana swiftlets and Micronesian megapodes; no individuals of those species were detected.

Transect surveys were also conducted in 2012 at the water catchment basin located on GSN property north of the runway and taxiway and at two artificial ponds at the Coral Ocean Point golf course located west of the airport (MES 2012). The following six bird species were observed at the water catchment basin: Eurasian wigeon (*Anas penelope*), northern shoveler (*Anas clypeata*), green-winged teal (*Anas carolinensis*), wood sandpiper (*Tringa glareola*), little egret (*Egretta garzetta*), and peregrine falcon (*Falco peregrinus*). Nine bird species were documented at the Coral Ocean Point golf course east pond: wood sandpiper, black-winged stilt (*Himantopus himantopus*), tattler sp. (*Tringa* sp.), black-tailed godwit (*Limosa limosa*), Mariana common moorhen, common greenshank (*Tringa nebularia*), common sandpiper (*Actitis hypoleucos*), yellow bittern, and marsh sandpiper (*Tringa stagnatilis)*. Six species were documented at the golf course west pond: Pacific golden plover (*Pluvialis dominica*), wood sandpiper, both white and dark morphs of the Pacific reef heron (*Egretta sacra*), yellow bittern, tattler sp., and common sandpiper.

During the 2012 surveys, biologists located a black noddy rookery near GSN. The rookery was approximately 205 m (675 feet) south of the proposed bulk fuel storage area, 195 m (640 feet) south of the proposed operational fuel tanks and hydrant system, 440 m (1,115 feet) northwest of the proposed maintenance facility, and 305 m (1,000 feet) north of the proposed west parking apron. There were more than 60 noddy nests located mostly in a large *Casuarina* tree with some in an adjacent flame tree. Most of the nests were active at the time of the surveys. There were also numerous white terns flying around the rookery. It was not determined whether the terns were nesting in the area.

In November 2005, a biologist from the U.S. Department of Agriculture, Wildlife Services, conducted an initial onsite assessment of wildlife hazards at GSN. Wildlife Services personnel determined the primary threats to aviation safety at GSN included cattle egrets, intermediate egrets, Pacific golden plovers, whimbrel (*Numenius phaeopus*), ruddy turnstones (*Arenaria interpres*), island collared doves, white terns, black noddy, and brown noddy (*Anous stolidus*). Other birds present that could pose a slightly lower risk to aviation safety included feral pigeons (*Columbia livia*), yellow bitterns, black-winged stilts, collared kingfishers, Micronesian starlings, and Eurasian tree sparrows (*Passer montanus*) (USDA 2008).

Mammals. The only mammals incidentally observed during the 2011 vegetation mapping and 2012 avian survey were rats (*Rattus* sp.), house shrews (*Suncus murinus*), and feral cats. No Mariana fruit bats or optimal roosting or foraging habitat for that species were found during those surveys.

Figure 4-2. Areas surveyed at GSN in 2012

Reptiles and Amphibians. Green anoles (*Anolis carolinensis*), Pacific blue-tailed skinks (*Emoia caeruleocauda*), green tree skinks (*Lamprolipis smaragdina*), and curious skinks (*Carlia fusca*) were incidentally observed during the 2011vegetation mapping and 2012 avian surveys. Only one amphibian, the marine toad (*Rhinella marina*), was observed in the area. [**Note:** *Rhinella* is a subgenus of the genus *Bufo*. *Rhinella marina* and *Bufo marina* are both currently used synonymously.] Focused reptile surveys were not conducted and it is likely that additional native and nonnative gecko and skink species are present in the area.

Invertebrates. The following species of butterfly were noted during surveys. Eggflies (*Hypolimnas* sp.), including blue moon and guardian, were frequently observed flying within and along the edge of tangantangan forest. The blue-banded king crow (*Euploea eunice*), common grass blue (*Zizina hylax*), large grass yellow (*Eurema blanda*), lemon migrant (*Catopsilia pomona*), cycad blue butterfly (*Chilades pandava*), and common mormon (*Papilio polytes*) were also observed on mowed edges of the tangantangan forest.

4.3 Surveys for Nightingale Reed-Warblers

Surveys were conducted for the nightingale reed-warbler to the north and south of the GSN runway following the protocol developed by the USFWS (USFWS 2009c). As specified by that protocol, one or two experienced observers walked designated line transects actively listening and watching for nightingale reed-warblers (MES 2012). All reed-warbler detections were plotted onto project site maps that were carried in the field. Playback recordings were not used to elicit responses. All surveys were conducted between 0600 and 1000 hours and 1630 hours to sunset. Survey results were used to determine the number of territories found on the project site. For this report, territories were defined as areas where singing male reed-warbler detections were concentrated and then further delineated with detections of males singing simultaneously.

Ten protocol surveys for nightingale reed-warblers were conducted between 21 January and 29 March 2012 in areas to the north of the GSN runway where the USAF proposes to develop facilities, and to the south of the runway in the area of the proposed munitions storage facility (see **Figure 4-2**). Eight nightingale reed-warbler territories were detected within the area surveyed north of the GSN runway (see **Figure 4-3**). No reed-warblers were detected to the south of the runway.

4.4 Surveys for Common Moorhens

The only ponds or other potentially suitable habitat for the Mariana common moorhen within or near GSN are the water catchment basin located north of the GSN runway and two artificial ponds west and northwest of the runway on the Coral Ocean Point golf course (see **Figure 4-2**). Nine line transect surveys were conducted around the entire perimeter of the water catchment basin and golf course ponds between 28 January and 24 March 2012 to detect moorhens and other avian species (MES 2012). Playback recordings were not used during those surveys to elicit responses from moorhens.

No moorhens were detected at the GSN water catchment basin or the golf course pond to the northwest of GSN (labeled west pond on **Figure 4-2**). A single adult moorhen was seen at the east golf course pond on 25 February and 4, 10, and 17 March. That pond has an impervious lining that inhibits the growth of shoreline emergent vegetation. The moorhen was seen along the southeastern, southwestern, and northeastern shorelines, and was observed roosting in and taking cover under a *Bougainvillea spectabilis* plant along the northeastern shoreline.

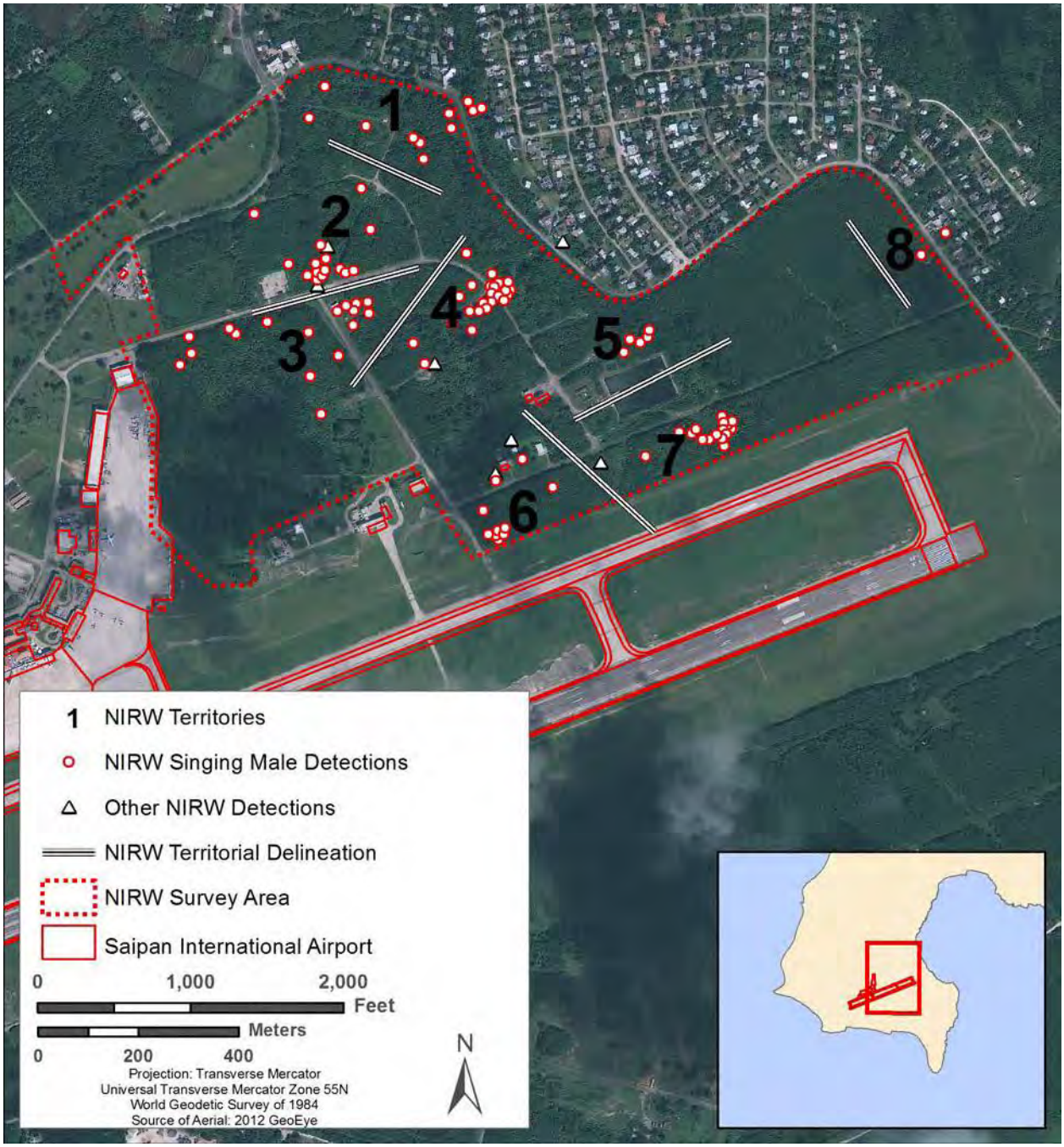

Figure 4-3. Nightingale Reed-Warbler Territories Detected within Surveyed Areas at GSN, January–April 2012

Two reconnaissance-level surveys also were conducted in the tangantangan forests east and west of the GSN runways (see **Figure 4-2**). More extensive protocol surveys were not conducted in those areas because the USAF does not plan to develop facilities within, or otherwise directly disturb, those forested areas. One singing male was detected west of the runway during one of those surveys.

Moorhens have been detected at the east golf course pond since about 2001 during surveys conducted by or for the CNMI Division of Fish and Wildlife (Paul Radley, CNMI Division of Fish and Wildlife, personal communication, March 26, 2012).

5. Effects of the Action

As described in **Section 1.2**, the USAF has determined that plans to establish divert capabilities at GSN and conduct divert activities and exercises on Saipan would have no affect on the Mariana fruit bat and Micronesian megapode. These decisions were based on the lack of suitable habitat for those threatened and endangered species near GSN, and effects on those species are not further discussed here.

5.1 Nightingale Reed-Warbler

Development and construction of facilities and infrastructure at GSN to support divert landings, periodic exercises, and humanitarian assistance and disaster relief would result in the loss and degradation of habitat for nightingale reed-warblers, and noise from those construction activities could temporarily disrupt the behavior of reed-warblers living adjacent to construction areas. Noise, human activity, and other disturbances during implementation of ground and air activities, aircraft support activities, and other airfield ground activities could also temporarily disrupt the behavior of nightingale reed-warblers in areas surrounding GSN. Transportation of equipment and personnel from Guam and other locations could result in the introduction of invasive species into Saipan, including the brown treesnake; the USAF would continue to implement practices to prevent the transport and release of brown treesnakes and other invasive species.

5.1.1 Impacts During Construction

Development of all proposed facilities would require the disturbance of up to about 24 ha (59 ac) at GSN and 2 ha (4 ac) at the Port of Saipan. In part to minimize impacts on nightingale reed-warblers, the USAF plans to locate most of their facilities in existing developed areas or areas that are currently mowed or otherwise periodically disturbed (see **Table 5-1**). However, because of the requirements to site some facilities in specific locations (such as parking ramps next to the taxiway), and because of the lack of cleared areas north of the existing GSN facilities, about 4.5 ha (11.0 ac) of tangantangan forest would be disturbed to develop and construct all proposed facilities (see **Table 5-1**).

The following evaluation of potential impacts on nightingale reed-warbler territories is based on the assumption that all proposed facilities will be developed. It is important to note that the USAF might not develop all facilities, and the impacts on nightingale reed-warbler, and associated required mitigation, could be less than that described. The following criteria in the SUMB Programmatic Biological Opinion (USFWS 2008a) was used to determine whether nightingale reed-warbler territories would be directly or indirectly affected.

- "Direct effects include clearing of vegetation or otherwise destroying a territory. If 29 percent or more of a territory is cleared or otherwise destroyed, then the entire territory will be considered destroyed. If less than 29 percent of a territory is cleared or otherwise destroyed, then only that portion of the territory will be considered directly affected and the remaining portion will be considered indirectly affected."
- "Habitat will be considered indirectly affected when the remaining portion of a territory where less than 29 percent is cleared of vegetation; or any portion of an adjacent nightingale reed-warbler territory would be subject to increased risk from nonnative invasive plant or animal access to habitat, feral ungulate access to habitat, predators…, human intrusion, erosion, or fire risk due to implementation of the proposed project."

Table 5-1. Amount of Vegetation Communities to be Removed for Construction of All Proposed Facilities at GSN (hectares [acres])

Facility	Tangantangan Forest	Mowed Field	Park	Agriculture/ Grazing	Disturbed/ Unmowed
Runway extension (west)	–	1.7 (4.3)	–	–	–
Runway extension (east)	–	1.9 (4.6)	–	–	–
Parking apron and ramp (west)	–	4.4 (10.8)	–	–	–
Parking apron and ramp (east)	2.6 (6.5)	2.0 (4.9)	–	–	–
Hangar	0.3 (0.8)	–	–	–	–
Temporary Munitions Storage Area	–	–	–	0.4 (1.0)	–
Hazardous cargo pad and arm/disarm Pad	0.4 (1.0)	1.2 (2.9)	–	–	0.2 (0.6)
Maintenance facility	0.04 (0.1)	–	–	–	–
Billeting (BEAR) site	–	–	5.0 (12.3)	–	–
Operational fuel tanks and hydrant system	–		1.3 (3.2)	–	0.3 (0.7)
Bulk fuel storage	1.1 (2.6)	–	0.04 (0.1)	–	0.9 (2.3)
Port of Saipan fuel receipt and storage	–	–	–	–	1.8 (4.4)
Total (acres)	**4.5 (11.0)**	**11.1 (27.5)**	**6.3 (15.6)**	**0.4 (1.0)**	**3.2 (8.0)**

- "Where indirect effects can be minimized on-site, a buffer zone or fences will be used, as appropriate. … An on-site buffer zone should be a minimum depth of 50 m [160 feet] from the edge of the construction to the nearest nest otherwise that nest and territory will be considered directly impacted."

Eight nightingale reed-warbler territories were detected during 10 surveys conducted from 22 January to 27 March 2012 (see **Figure 5-1** and **Table 5-2**). Reed-warblers were detected in most territories throughout the survey period; however, they were detected in territory 5 from 11 February to 10 March and in Territory 8 from 22 to 24 March (MES 2012). The area used by reed-warblers within those territories during the surveys was calculated by measuring the minimum-sized convex polygon encompassing all observations. Some of the areas used by reed-warblers during the survey period were small compared to average territory size of about 4 hectares (10 acres) or larger reported by Mosher (2006; USFWS 2010b). Only two detections occurred within territory 8; thus, the area used within that territory was not calculated.

Construction of the east parking ramp would require the clearing of about 2.6 ha (6.5 ac) of tangantangan forest, including 53 percent of the area used in territory 6 (see **Figure 5-1**). The breeding birds in that territory would be displaced, and those birds likely would not survive or would have reduced reproductive success.

Figure 5-1. Proposed Project Facilities and Nightingale Reed-Warbler Territories

Table 5-2. Nightingale Reed-Warbler Territories at GSN, 2012

Territory	Size – Hectares (acres)	Distance to Nearest Proposed Facility – Meters	Nearest Proposed Facility	% Disturbed
1	2.5 (6.1)	70	Billeting	0
2	2.8 (7.0)	37	Bulk fuel tanks	0
3	3.8 (9.3)	12	Bulk fuel tanks	0
4	1.9 (4.6)	168	Maintenance building	0
5	0.2 (0.6)	213	Hanger	0
6	1.5 (3.8)	0	East parking apron	53
7	0.8 (2.1)	70	Hanger	0
8	n/a	335	Hot cargo pad	0

Construction of the east parking ramp would require the clearing of about 2.6 ha (6.5 ac) of tangantangan forest, including 53 percent of the area used in territory 6 (see **Figure 5-1**). The breeding birds in that territory would be displaced, and those birds likely would not survive or would have reduced reproductive success.

The bulk fuel storage tanks would be installed adjacent to the areas used within territories 2 and 3 (see **Figure 5-1**). Over half of the 2.1-ha (5.0-ac) site where the fuel tanks would be installed, including the southern portion closest to habitat used by reed-warblers in those territories, was cleared and used as a materials storage area temporarily during excavation of the GSN detention basin. Because a portion of that site has been cleared, and the remaining vegetated area does not appear to be used, or is used infrequently, by nightingale reed-warblers, there would be no direct effects on those territories. However, as suggested by the USFWS (2006b) for other construction activities at GSN, noise, human activities, lights, and other disturbances associated with the construction and operation of the fuel storage system could indirectly adversely affect nightingale reed-warblers in those territories by disrupting or modifying their behavior, further degrading nearby nesting or foraging habitat, causing an increase in predation, or otherwise causing a decrease in reproductive output. Because there would be no loss of habitat within those territories, and because a portion of the bulk fuel storage area already has been cleared, it is likely that the territories would persist. As evidence of this likelihood, two territories that were predicted to be directly affected by construction of the GSN detention basin (USFWS 2006b) persisted during construction of that facility, and nightingale reed-warblers were detected in those areas as territories 5 and 7 in 2012 (see **Figure 5-1**).

The other five territories would be separated from facilities by a buffer of tangantangan forest of more than 50 m (164 feet) (see **Table 5-2**), and thus would not be directly or indirectly affected, or would be minimally affected, by construction. The nearest observations in two of those territories (1 and 7) were about 70 m (230 feet) from the edge of a facility, but the majority of the detections in those territories were more than 150 m (500 feet) from areas that would be disturbed. The other three territories would be separated from proposed facility locations by a buffer of 150 to more than 300 m (550 to more than 1,000 feet). As shown in **Figure 5-1**, nightingale reed-warblers occur at GSN in close proximity to disturbed areas with ongoing human presence; therefore, territories located at such large distances from the facilities would not be affected by facility construction.

5.1.2 Impacts During Implementation

As further described in **Section 2.2**, after completion of construction, the USAF would use GSN periodically and temporarily for divert landings and takeoffs, joint military exercises, airlift staging for humanitarian assistance and disaster relief, and other activities. All activities would be conducted within existing disturbed and developed areas and would not result in any additional habitat loss.

During implementation of the project, nightingale reed-warblers living at and near GSN, including those occurring in the tangantangan forests to the east and west of the runway, could be adversely affected by an increase in noise, lighting at night, and human activities during divert activities and exercises. To ensure that nightingale reed-warblers are not disturbed during activities and exercises, personnel would be restricted to the developed facilities at GSN and would be briefed on that and other requirements for the protection of nightingale reed-warblers and other listed species. In addition, if personnel are to be billeted at GSN, the location of the BEAR facility would be temporarily fenced in part to keep personnel away from nightingale reed-warbler habitat.

The increase in takeoffs and landings of large aircraft at GSN could cause more birds at GSN to be struck and killed by aircraft. However, nightingale reed-warblers nest and forage in dense vegetation (Craig 1992, USFWS 1998b) and therefore are unlikely to be struck by military or other aircraft taking off from, or landing at GSN.

The periodic increase in frequency and intensity of noise from military operating during military exercises at GSN has the potential to adversely affect nightingale reed-warblers living adjacent to or near GSN. On average, about 13 large aircraft (e.g., 747-200 and 767-300 commercial aircraft), and 126 smaller aircraft currently arrive or depart daily at GSN (USAF 2012, Section 3.1.2.1), and nightingale reed-warblers and other animals living below the flight paths at GSN are exposed to noise from those takeoffs and landings year round. During military exercises, which might occur at GSN as many as 8 weeks per year, up to about 72 additional takeoffs and landings by large aircraft such as the KC-135 and smaller jet aircraft such as the F-18 or F-22 could occur on a very busy day.

To compare the sound levels generated by those aircraft, sound energy level per aircraft type was estimated at 1,000 feet from the end of the runway during takeoff. Sound energy level is calculated as the sum of sound energy over the duration of a noise event (such as a flyover) and represents an equivalent noise event with a one-second duration. Because the energy level is normalized to one second, it is higher than the maximum sound level for that event. The actual sound level will vary depending on power setting, accent and decent angle, weather, and other factors. Sound levels are reported here in units of A-weighted decibel (dBA), which is weighted by the ability of humans to hear various sound frequencies, and is used to characterize sound levels that can be sensed by the human ear. The auditory sensitivity of birds to sound frequencies differ from those of humans; however, because there is no standard or commonly used measure that characterizes sound levels sensed by birds, results are reported in dBA, which is measured on a logarithmic scale.

The estimated sound energy level of a B-747 commercial aircraft during takeoff at 1,000 feet is 106.3 dBA. The sound energy level of a KC-135 (103.9 dBA) and F-16 (109.1 dBA) is similar, and the sound energy level of an F-22 is higher (122.6 dBA).

To evaluate the potential cumulative increase in noise levels that would occur during planned joint military exercises or other unit-level exercises, the USAF modeled and reported in the Draft EIS

(USAF 2012, Section 4.1.1.2) day-night average sound levels (DNL) for three noise-level scenarios, with the following type and mix of aircraft (cargo versus fighter) for each scenario.

- Low scenario—12 KC-135
- Medium scenario—6 KC-135, 8 F-16, and 4 F-22
- High scenario—12 F-16 and 12 F-22.

To model an average busy day for each scenario, it was estimated that all aircraft would complete 4 operations per day (2 arrivals and 2 departures) during military exercises. See the Draft EIS (USAF 2012, Section 4.1.1.2) for other assumptions used in the calculations.

Figures 5-2 through 5-4 show predicted DNL contours for the low, medium, and high scenarios, respectively (USAF 2012, Section 4.1.1.2), and **Figure 5-5** shows a closer view of the predicted noise surrounding GSN for the medium scenario. As shown in the figures, there would be an increase in sound levels in the areas surrounding GSN on days when exercises are held there. For example, at Coral Ocean Point Golf Course the predicted sound levels on a busy day are 69, 78, and 83 dBA DNL for the low, medium, and high scenarios, respectively, compared to a current estimated annual average sound level of 63 dBA DNL at that location. Note that the USAF is discussing with its cooperating agencies and the Commonwealth Port Authority potential mitigation measures to reduce the effects of noise on the surrounding area, and would present those measures in the Final EIS. Based upon operational restrictions agreed upon and implemented by the USAF, it is anticipated that noise levels on Saipan would be reduced during training exercises; hence, the noise levels reported here and in the Draft EIS are considered a "worst case" scenario and the USAF anticipates that the noise levels to be reported in the Final EIS would be less than reported here.

Reviews of the effects of sound on animals are available (see Dufour 1980, Manci et al. 1988, Larkin et al. 1996, Efroymson et al. 2000, Kaesloo and Tyson 2004), and studies referenced in those reviews have documented that chronic exposure to continuous high sound levels (e.g., traffic, construction) and exposure to high sound energy impulses (e.g., sonic booms, aircraft overflight) can cause physical damage and hearing impairment; physiological effects; and changes in behavior, habitat use, and possibly reproduction. Efroymson et al. (2000) describe a framework for conducting ecological risk assessments of low-altitude overflights of military aircraft on wildlife, but concluded that there is insufficient information available to apply the risk assessment methodologies to songbirds.

Exposure to high sound levels can cause physical damage to the ear, which can result in temporary or permanent hearing loss (Dufour 1980). Studies of sound levels that can cause hearing impairment have been conducted on laboratory and domestic animals, primarily mammals, but few studies of impacts on birds, especially song birds, have been conducted. Larkin et al. (1996) described laboratory studies documenting that long-term exposure of canaries (*Serinus canaria domesticus*) to sound at 95 to 100 dB, and exposure of budgerigars (*Melopsittacus undulatus)* to impulse sound with a peak energy level of 169 dB, caused an increase in hearing threshold (i.e., the minimum level at which sound can be detected). However, these results might be of limited value for understanding whether the hearing of nightingale reed-warblers would be adversely affected by military jets, as there are substantial differences in the auditory sensitivity to intensity and frequency of sound among species (Dufour 1980, Larkin et al. 1996). Nightingale reed-warblers currently are exposed to sound from commercial jets that are similar in intensity to most military aircraft proposed to be used at GSN, but some aircraft, such as the F-22, are substantially louder, and the frequency of exposure to loud aircraft would be greater during military exercises. Male nightingale reed-warblers use calls to defend territories (Craig 1992) and probably to attract mates; therefore, temporary or permanent hearing loss could cause a decrease in reproductive fitness. Hearing impairment could also result in other adverse effects, such as an increase in mortality if reed-warblers could not hear approaching predators.

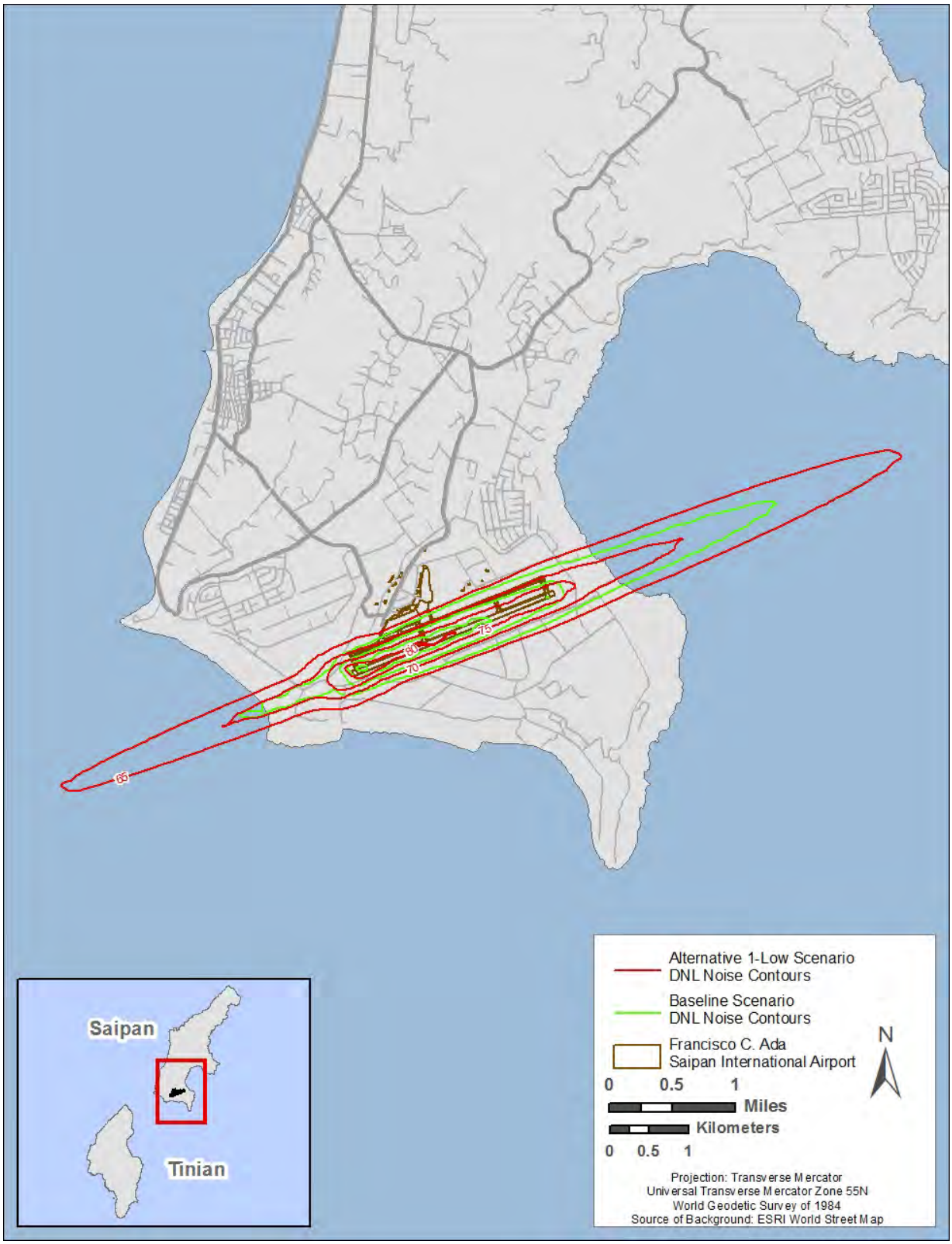

Figure 5-2. Low Scenario Predicted DNL Noise Contours (dBA) During a Military Exercise at GSN (USAF 2012)

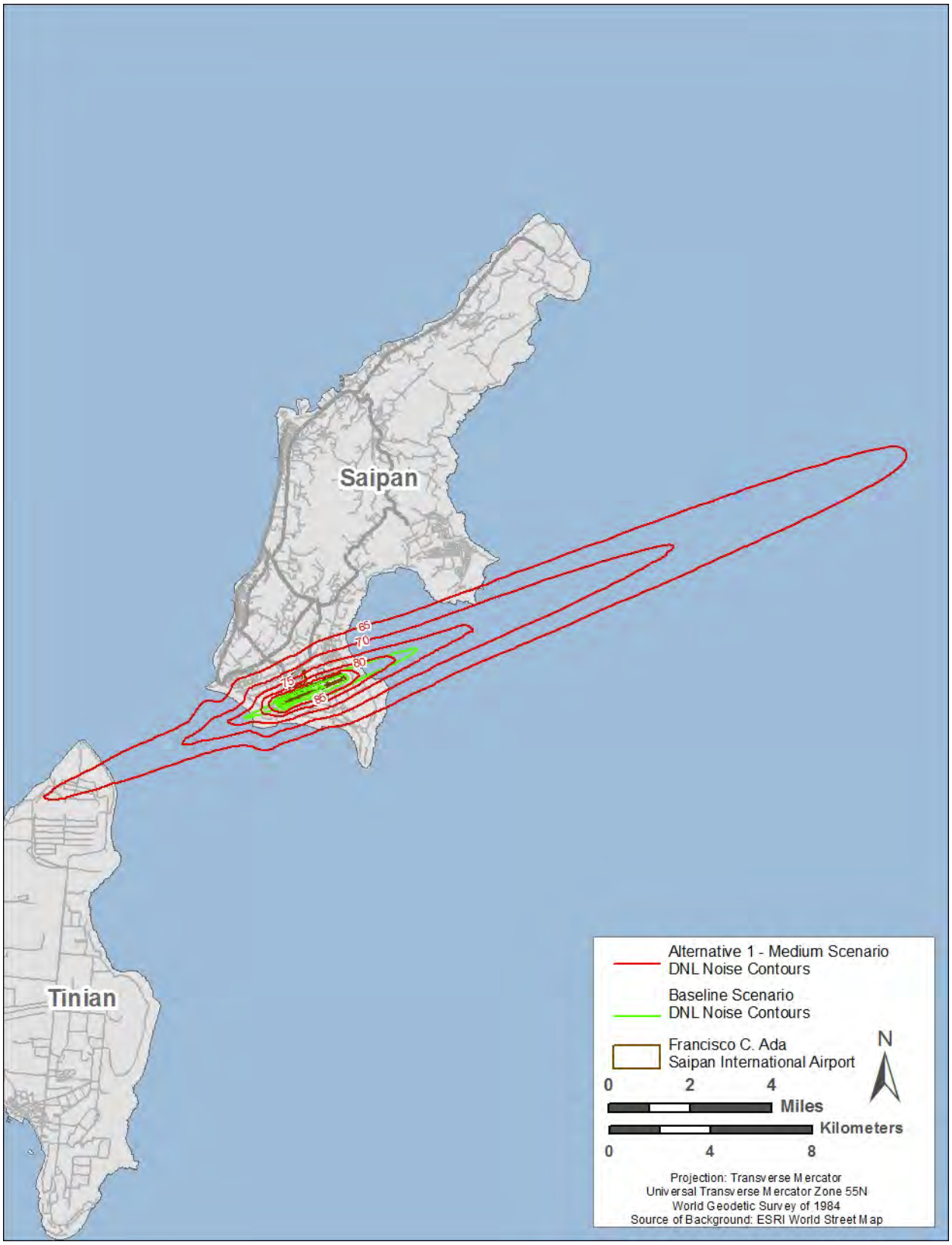

Figure 5-3. Medium Scenario Predicted DNL Noise Contours (dBA) During a Military Exercise at GSN (USAF 2012)

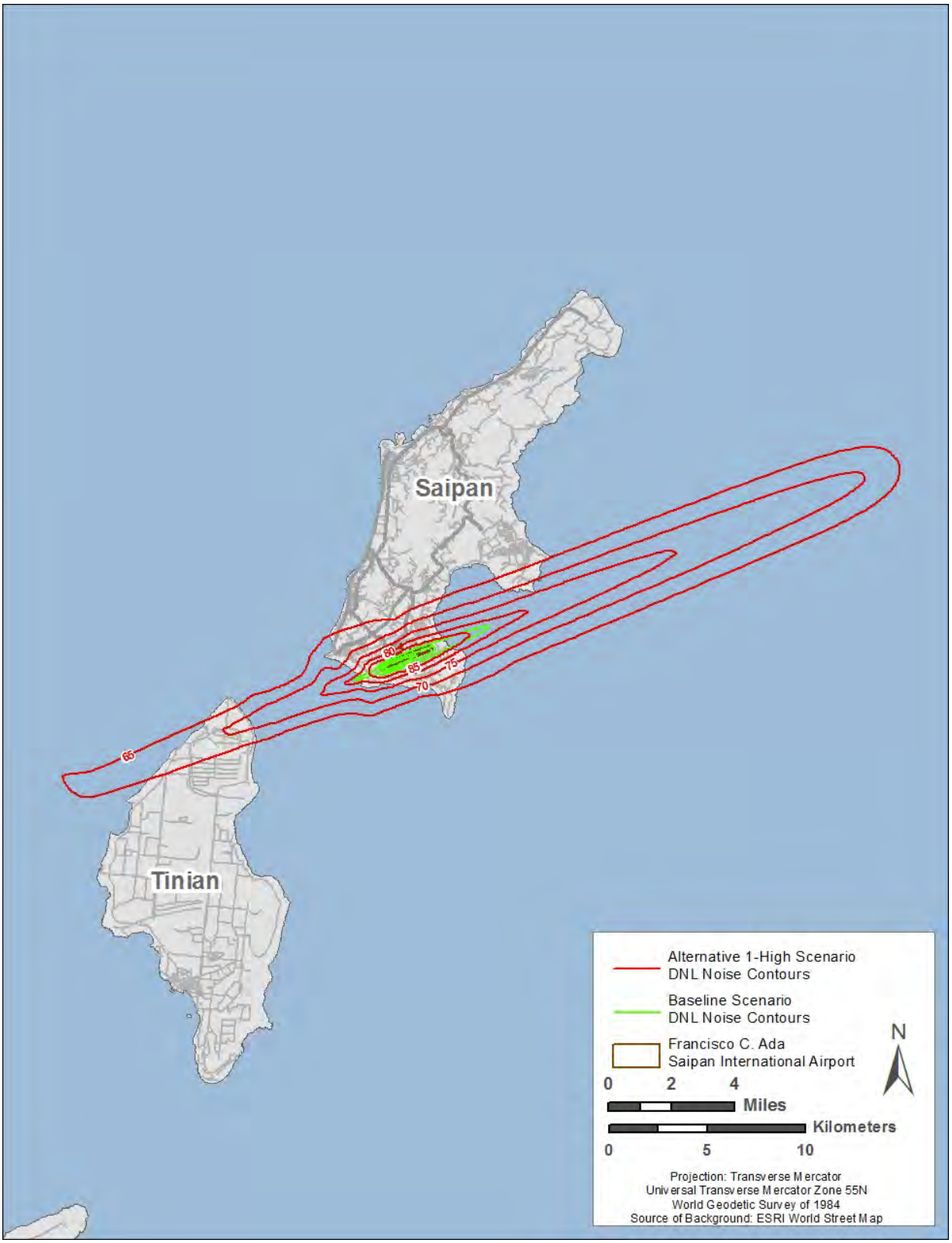

Figure 5-4. High Scenario Predicted DNL Noise Contours (dBA) During a Military Exercise at GSN (USAF 2012)

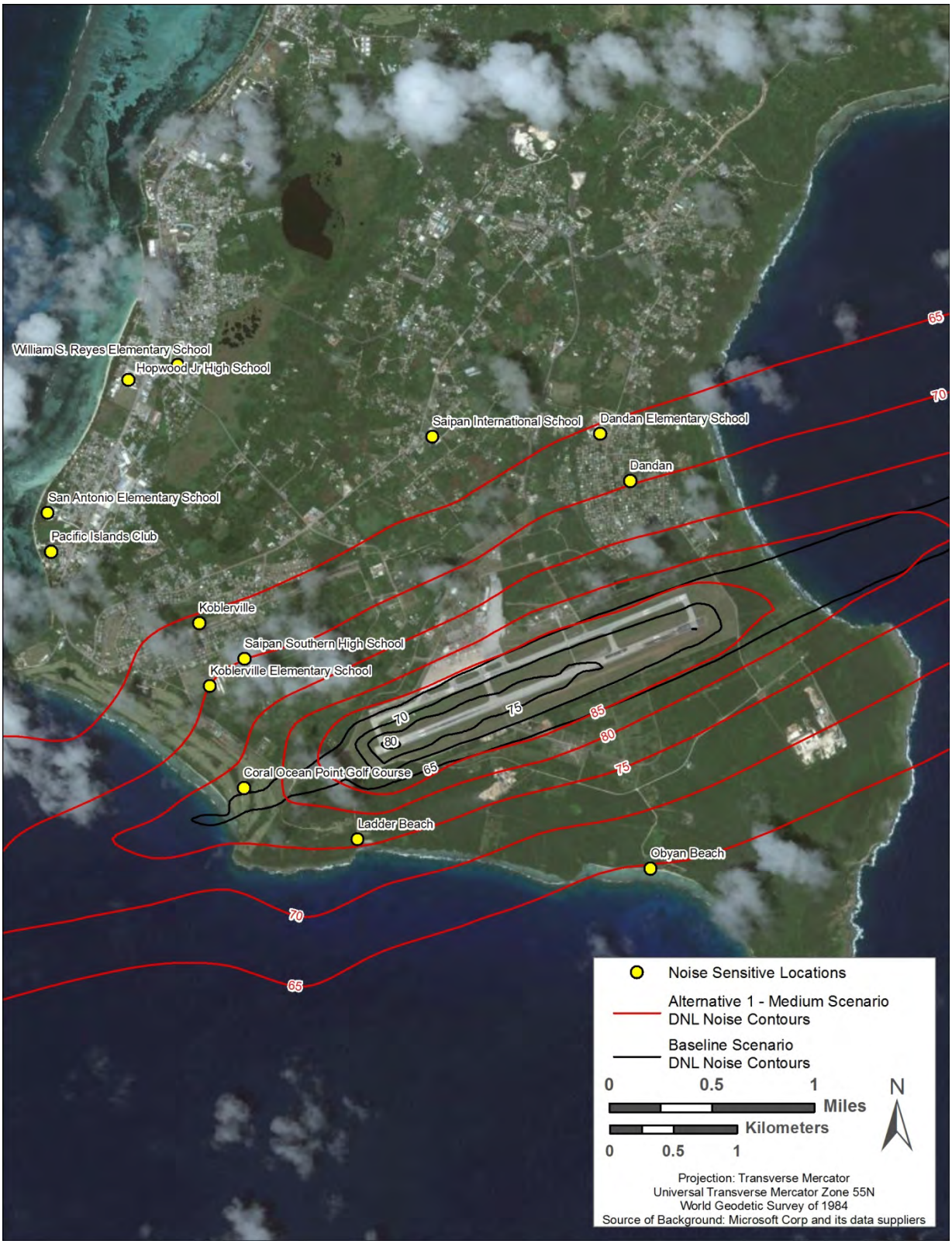

Figure 5-5. Predicted DNL Noise Contours (dBA) During a Military Exercise at GSN (medium scenario in USAF 2012)

Exposure to loud noises can also cause physiological changes in animals, such as an increase in blood pressure and heart rate, changes in blood chemistry, and changes in digestive and respiratory functions. Numerous studies of the physiological response of mammals to noise have been conducted (see reviews by Dufour 1980, Manci et al. 1988, Larkin et al. 1996), but no studies have been done to measure the physiological response of wild songbirds to noise, or to evaluate the long-term consequences of those physiological changes on the survival or reproductive fitness of wild animals.

The most likely, detectable response of nightingale reed-warblers to an increase in takeoffs and landings of loud aircraft, and to other noises at GSN, might be a temporary or permanent change in behavior. Birds have been documented to abandon nests temporarily or permanently, avoid areas, and otherwise modify their behavior in response to noise. Efroymson et al. (2000) summarize more than 40 studies or observations of the response of raptors and waterbirds to overflights. Responses varied substantially, with some birds flushing or otherwise reacting in response to aircraft passing more than 1 km (0.6 miles) away, but many birds not reacting, even in response to overflights closer than 100 m (330 feet). The response to overflights can vary with season or timing of nesting, and probably also in response to numerous other factors. For example, Mexican spotted owls (*Strix occidentalis lucida*) were less likely to flush in response to noise early during nesting than later during the nesting season, but flush response did not differ between the nesting and non-nesting season (Delany et al. 1999). Awbrey and Hunsaker (1997) and Hunsaker et al (2007) documented a weak correlation between noise levels and number of nesting attempts by coastal California gnatcatchers at Naval Air Station Miramar, but concluded that noise from fixed-wing military aircraft and helicopters had no measurable effect on reproductive success. Flushing from nests or other changes in behavior could have an effect on reproduction or survival. For example, a sooty tern (*Onychoprion fuscatus*) colony had 99 percent nest failure in a year when low-flying, supersonic aircraft frequently flew over the colony; nest failure might have been, in part, due to damage to eggs as females rapidly left their nests (Manci et al. 1988).

Birds and other wildlife have been documented to become habituated to aircraft overflights and other noises after continuous or frequent exposure. For example, red-tailed hawks (*Buteo jamaicansis*) that were previously exposed to helicopters exhibited less response than hawks that had not been previously exposed (Andersen et al. 1989). Habituation also has been frequently noted when using noise-making devices to scare birds away from crops or airfields (Larkin et al. 1999, Efroymson et al. 2000). Nightingale reed-warblers living near GSN are exposed to numerous takeoffs and landings of commercial jets daily and those birds, therefore, might not react in as strenuous a manner as unhabituated birds to the infrequent and temporary increase in noise from divert activities and exercises.

Loud noises can also mask other sounds that are important to birds, such as territorial calls or the sounds of approaching predators (Larkin et al 1996, Kaesloo and Tyson 2004). Because the noise from military aircraft at GSN would be of short duration, most takeoffs and landings should not adversely affect nightingale reed-warblers in this manner. However, if numerous aircraft take off and land over a short period, nightingale reed-warblers might not be able to hear territorial calls or other sounds for an extended period.

In summary, nightingale reed-warbler would be exposed to high sound levels when military aircraft take off and land during exercises at GSN, which would occur up to 8 weeks per year. Those birds currently are exposed to noise from commercial jets that are of similar or lower intensity than that of the military aircraft that would operate at GSN. Similar disturbances and noise levels have caused other birds to flush or leave their nests, and resulted in other adverse consequences. However, there is insufficient information available to determine how nightingale reed-warblers at GSN would react to the increase in frequency of loud overflights, and the increase in sound intensity during some of those overflights. In addition, other than to generalize that nightingale reed-warblers with territories near GSN and directly

under the flight paths are more likely to be affected than birds living farther away, it is not possible to specify where or how many territories might be affected by an increase in operations of loud aircraft.

To mitigate for the impacts of noise and indirect impacts on nightingale reed-warblers that will occur during the implementation phase of this project, the USAF will purchase credits or otherwise fund conservation activities at the SUMB conservation area as required in the SUMB Biological Opinion.

5.1.3 Invasive Species

The USFWS lists predation by introduced species as one of the two main threats to the recovery of nightingale reed-warblers, and states that establishment of the brown treesnake on Saipan would result in the extirpation of that bird, as occurred on Guam (USFWS 2010b).

Brown treesnakes and other invasive species could be released into Saipan when personnel and equipment are transported from Guam and other locations for construction of facilities and during divert events and exercises. To prevent this from happening, the USAF would continue their ongoing program of interdicting the transport of invasive species in the Mariana Islands. As further described in **Section 2.4**, this would include the following:

- Developing and implementing a Hazard Analysis and Critical Control Point Plan during construction and maintenance and operation of facilities at GSN and the Port of Saipan
- Inspecting outgoing aircraft, equipment, and materials from Guam with trained quarantine officers and dog detection teams
- Use existing or new, temporary or permanent, snake-free quarantine areas on Saipan for inspection of cargo traveling from Guam to Saipan when applicable. Those areas will be subject to (1) multiple day and night searches with appropriately trained interdiction canine teams that meet performance standards, (2) snake trapping, and (3) visual inspections for snakes.
- Implementing other interdiction and control requirements in the applicable Biological Opinions (e.g., USFWS 2006a, 2010a) and associated implementing instructions for training exercises in the Mariana Islands including but not limited to the procedures in JTREGMARIANAS Instruction 5090.4 for inspection of equipment and gear.

5.1.4 Cumulative Effects

Reasonably foreseeable future activities that might occur on Saipan are described in Section 5.1 of the *EIS for Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands* (USAF 2012). Future Commonwealth or private activities that are reasonably certain to occur within the action area include road development and widening; geothermal, solar, and other energy production; improvement and expansion of water, wastewater, power, and other public works systems; and development of commercial, residential, medical, and other facilities. Those activities, along with the USAF proposal to clear 4.5 ha (11.0 ac) of tangantangan forest to develop infrastructure at GSN, would contribute to the cumulative loss of habitat for the nightingale reed-warbler on Saipan. Those activities would also cause an increase in noise during construction, habitat degradation, other indirect impacts that would cumulatively adversely affect nightingale reed-warblers and possibly other ESA protected species on Saipan.

5.2 Mariana Common Moorhen

A single Mariana common moorhen was observed during four of nine surveys of the east golf course pond, which is about 0.9 km (0.6 mi) southwest of GSN. That pond has an impervious liner that prevents the establishment of shoreline emergent vegetation and the surrounding vegetation is mowed or maintained for operation of the golf course. Moorhens nest in wetlands with emergent vegetation USFWS (1992), and it is, therefore, unlikely that moorhens nest at that pond. No moorhens were seen at the two other surface waters surveyed near GSN (see **Section 4.4**).

During planned joint military exercises or other unit-level exercises, any moorhens located at the golf course pond would be exposed to more frequent takeoffs or landing of aircraft. Sound levels from those aircraft would be similar to or louder than the commercial jets at GSN. Noise from the take-off and landing of those aircraft might cause Mariana common moorhens using that or other surface waters near GSN to temporarily disrupt their behavior. However, because any bird using those ponds would be habituated to frequent noise from current operations at GSN, and because the increase in noise from divert activities and exercises would be infrequent, it is very unlikely that Mariana common moorhen would avoid the use of those ponds.

Because (1) the surface waters near GSN are marginal habitat that are used temporarily by moorhens, (2) birds there likely are habituated to noise from current operations at GSN, (3) any increase in noise from divert activities and exercises would be temporary and infrequent, and (4) the ongoing program for interdicting the transport of brown treesnakes and other invasive species in the Mariana Islands would be implemented for this project (see **Section 2.4**), the USAF concludes that any adverse impacts would be temporary and insignificant, and that developing divert capabilities and conducting divert activities and exercises at GSN may affect, but are unlikely to adversely affect, Mariana common moorhens.

5.3 Mariana Swiftlet

Mariana swiftlets nest in caves located in central Saipan (Cruz et al. 2008) and favor ridge crests and open, grassy areas for foraging (USFWS 1991). No swiftlets were detected during bird surveys conducted at GSN during 2012, and the nearest cave used by these birds for roosting and nesting is more than 3 km (2 mi) north of GSN (MES 2012).

The clearing of up to 4.5 ha (11.0 ac) of second-growth forest for this project would have an insignificant adverse effect on the availability of foraging habitat for this species because tangantangan forest is common in the area and is not preferred foraging habitat. In addition, any adverse effect would be offset by the benefit of long-term protection of forest habitat in the SUMB that would be funded by the Air Force to compensate for the loss of nightingale reed-warbler habitat. The possibility of a swiftlet being harmed by aircraft during divert activities and exercises is discountable because the area is distant from nesting caves, the second-growth forests at the end of the runways are not preferred foraging habitat, and swiftlets likely avoid the busy airspace around GSN. For these reasons, the USAF concludes that developing divert capabilities and conducting divert activities and exercises at GSN may affect, but are not likely to adversely affect, Mariana swiftlets.

5.4 Green Sea Turtles

Up to 18 green sea turtles nests have been found annually on Saipan since 1999 (Kolinski et al. 2001, Maison et al. 2010). Nesting habitat for this species would not be directly affected by this project. However, green sea turtles nesting on beaches of southern Saipan, and hatchling turtles moving from nests to the ocean, could be temporarily exposed to noise from military aircraft participating in divert

activities or exercises (DON 2010). Exposure to elevated noise levels would be brief (seconds) and, with the exception of emergency divert landings and associated take-offs, would occur over a period of no more than 8 weeks of the year. Any behavioral avoidance reaction would be short-term and would not permanently displace sea turtles or result in physical harm. Noise from take-offs and landing would not result in chronic stress because it is unlikely that individual sea turtles would be repeatedly exposed to low-altitude overflights. Therefore, any effects would be insignificant and would not be sufficient to harm or harass sea turtles, and the USAF concludes that developing divert capabilities and conducting divert activities and exercises at GSN may affect, but are not likely to adversely affect, green sea turtles in terrestrial environments.

6. Conclusions

Based on the description of the project in **Section 2** of this BA and further described in the associated EIS (USAF 2012), the status of species and environmental baseline described in **Sections 3** and **4**, and the analysis of impacts in **Section 5**, the USAF concludes the following about the potential impacts on threatened and endangered species from developing divert capabilities and conducting divert activities and exercises at GSN.

- The proposed project will have no affect on Mariana fruit bat and Micronesian megapodes
- The proposed project may affect, but is unlikely to adversely affect, the Mariana common moorhen, Mariana swiftlet, and nesting green sea turtle
- The proposed project may affect, and is likely to adversely affect, the nightingale reed-warbler.

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JUN 2 7 2013

In Reply Refer To:
2012-F-0445

Mr. Marc M. Aoyama, P.E.
Chief, Programs Division
Directorate of Installations and Mission Support
Department of the Air Force
Pacific Air Forces
25 E Street, Suite D-306
Joint Base Pearl Harbor-Hickam, Hawaii 96853

Subject: Formal Consultation for Divert Activities and Exercises at the Saipan International Airport, Commonwealth of the Northern Mariana Islands

Dear Mr. Aoyama:

This document represents the U.S. Fish and Wildlife Service's (Service) Biological Opinion on the U.S. Air Force's (USAF) proposed Divert Activities and Exercises (Divert) at the Saipan International Airport (GSN) in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C 1531 et seq.). This Biological Opinion addresses the potential impacts of Divert on the endangered nightingale reed-warbler (*Acrocephalus luscinia).* Your request for formal consultation was received on September 10, 2012. An informal consultation addressing potential impacts to the endangered Mariana moorhen (*Gallinula chloropsis guami*), Mariana swiftlet (*Aerodramus bartschi*), and threatened green sea turtle (*Chelonia mydas*), is found in Appendix 1.

Overall island-wide effects to the nightingale reed-warbler are addressed through the October 23, 2008, *Programmatic Biological Opinion Regarding the Reestablishment, Management, and Use of the Saipan Upland Mitigation Bank, Saipan* (2008-F-0033) (Programmatic Biological Opinion). The Programmatic Biological Opinion addressed the creation of the Saipan Upland Mitigation Bank (SUMB) to protect and manage 419 hectares of land on Saipan in perpetuity for the nightingale reed-warbler. The findings and recommendations in this consultation are based on: (1) the USAF Biological Assessment for Divert received on September 10, 2012; (2) phone calls, meetings, and emails between Rachel Rounds (Service) and the USAF and its contractors; (3) the SUMB Programmatic Biological Opinion and; (4) other information available to us. A complete administrative record is on file in our office.

CONSULTATION HISTORY

June 17, 2013. The USAF and the Service agree upon final language for the invasive species conservation measures.

May 9, 2013. The Service provided the USAF with proposed edits to the invasive species section of conservation measures.

April 10, 2013. The USAF provided the Service with a re-written rapid response conservation measure which is acceptable to both agencies.

March 13, 2013. The USAF and Service had a phone call to further discuss the rapid response conservation measure in the draft Biological Opinion.

February 27, 2013. The Service provided USAF with revised invasive species conservation measures for their review.

February 26, 2013. The Service (Rachel Rounds and Domingo Cravalho) had a phone call with USAF and U.S. Navy staff and contractors (William Grannis, Kurt Rautenstrauch, Steve Pyle, Carol Gaudette, Lieutenant Colonel Alves, Steve Mosher, Lance Laughmiller, Mark Cruz, Edward Lynch, Mark Petersen) to discuss invasive species conservation measures.

February 14, 2013. The USAF provided the Service with comments on the draft Biological Opinion.

February 1, 2013. The Service provided the USAF with a draft Biological Opinion for review.

January 25, 2013. William Grannis (USAF) provided Rachel Rounds (Service) with an updated project description.

January 14, 2013. William Grannis (USAF) called Rachel Rounds (Service) to notify the Service that the USAF would like to purchase 17 credits in the SUMB to offset impacts to the nightingale reed-warbler.

December 12, 2012. The Service (Rachel Rounds, Earl Campbell, Brand Phillips, and Domingo Cravalho) had a phone call with USAF staff and contractors (William Grannis, Kurt Rautenstrauch, Shannon Cauley, Steve Pyle, Carol Gaudette, Mark Ingoglia, and Lieutenant Colonel Alves) had a conference call to discuss invasive species conservation measures.

November 16, 2012. William Grannis (USAF) sent Rachel Rounds (Service) a revised project description.

October 18, 2012. Kurt Rautenstrauch (HDR) provided Rachel Rounds (Service) with maximum noise estimates for four aircraft types and 10 locations around GSN.

October 11, 2012. Rachel Rounds (Service) and USAF staff and contractors (William Grannis, Daniel Robinson, Dale Clark, Steve Pyle, Julie Hong, Major Toves, Kurt Rautenstrauch, Tanya Perry) had a phone call to discuss the timeline for re-initiation of the Biological Opinion, the noise disturbance analysis, and joint military training exercises.

October 1, 2012. Rachel Rounds and Domingo Cravalho (Service) and USAF staff and contractors (William Grannis, Major Toves, Kurt Rautenstrauch, Shannon Cauley, Steve Pyle, and Edward Lynch) had a phone call to discuss SUMB credit purchases, Biological Opinion timeline, and brown treesnake conservation measures.

September 20, 2012. Rachel Rounds (Service) and USAF staff and contractors (William Grannis, Julie Hong, Major Toves, Bernie Marcos, Shannon Cauley, and Kurt Rautenstrauch) had a phone call to discuss conservation measures, SUMB credit purchases, monitoring projects, and the Divert training schedule.

September 18, 2012. Rachel Rounds (Service) sent William Grannis (USAF) a list of questions on the Divert Biological Assessment.

September 10, 2012. The Service received the Final Biological Assessment from the USAF.

July 26, 2012. Rachel Rounds (Service) and USAF staff and contractors (William Grannis, Edward Lynch, Stephen Pyle, Shannon Cauley) had a phone conversation to discuss Service comments on the draft Biological Assessment.

July 19, 2012. The USAF submitted a draft Biological Assessment to the Service for review.

May 31, 2012. The USAF and its contractors (Kurt Rautenstrauch, William Grannis, Mark Ingoglia, Edward Lynch, Mark Petersen, Shannon Cauley, and Major Pete Toves) and Service staff (Rachel Rounds and Earl Campbell) met to discuss the results of threatened and endangered species surveys at the Saipan International Airport and the section 7 consultation process.

July 15, 2011. USAF and its contractors (Edward Lynch, Carol Gaudette, William Grannis, Shannon Cauley, Julie Hong, and Mark Ingoglia) presented to the Service (Loyal Mehrhoff, Earl Campbell, Annie Marshall, Steve Miller, Fred Amidon, Domingo Cravalho, and Rachel Rounds) initial information regarding the Divert Project, discussed threatened and endangered species in the potential project areas, and discussed the section 7 consultation process.

ACTION AREA

The action area for the proposed project is the airport and surrounding areas (Figure 1), the seaport (Figure 2), and the Saipan Upland Mitigation Bank Conservation Area, which will be used for mitigation actions.

Figure 1. Proposed Facilities at Saipan International Airport

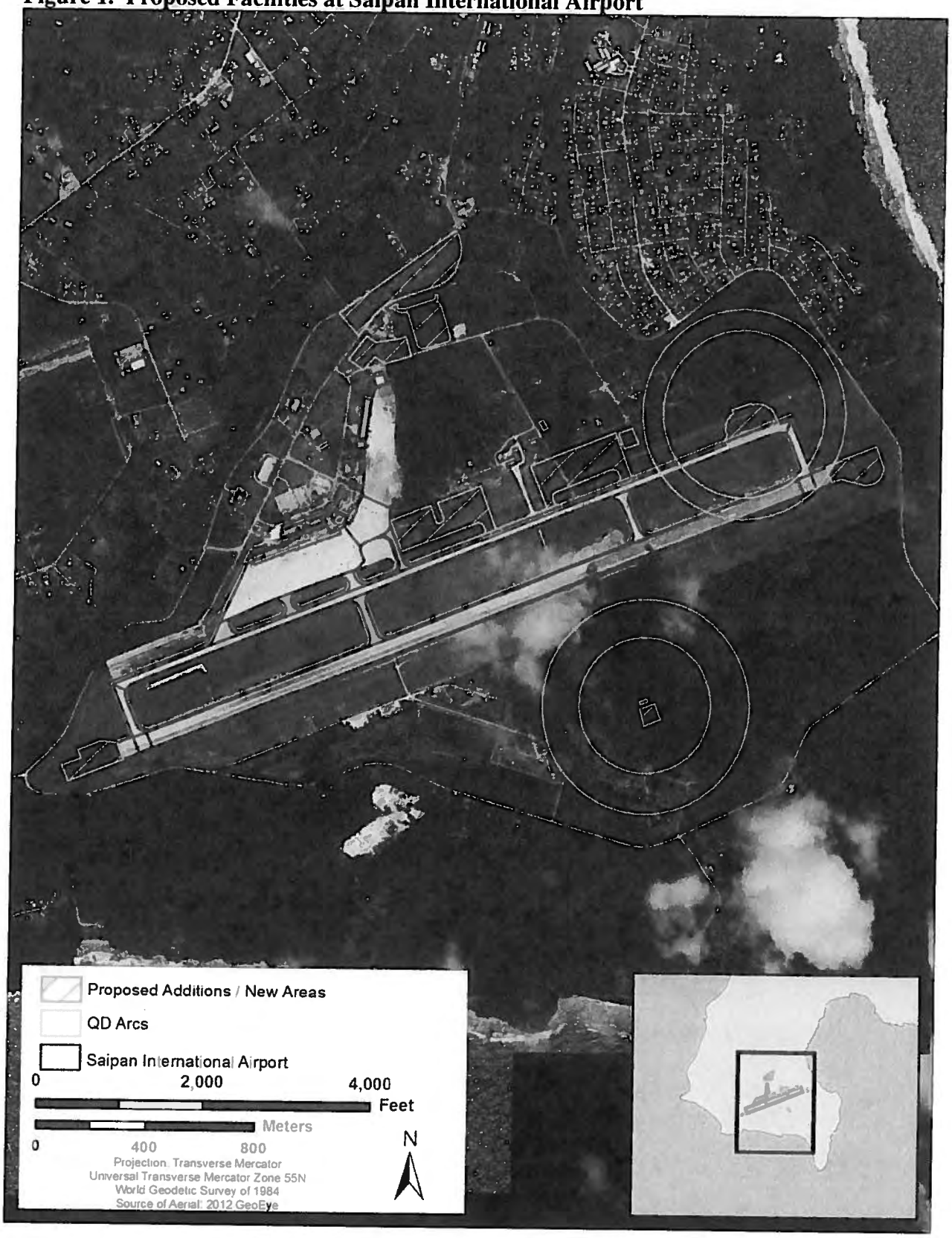
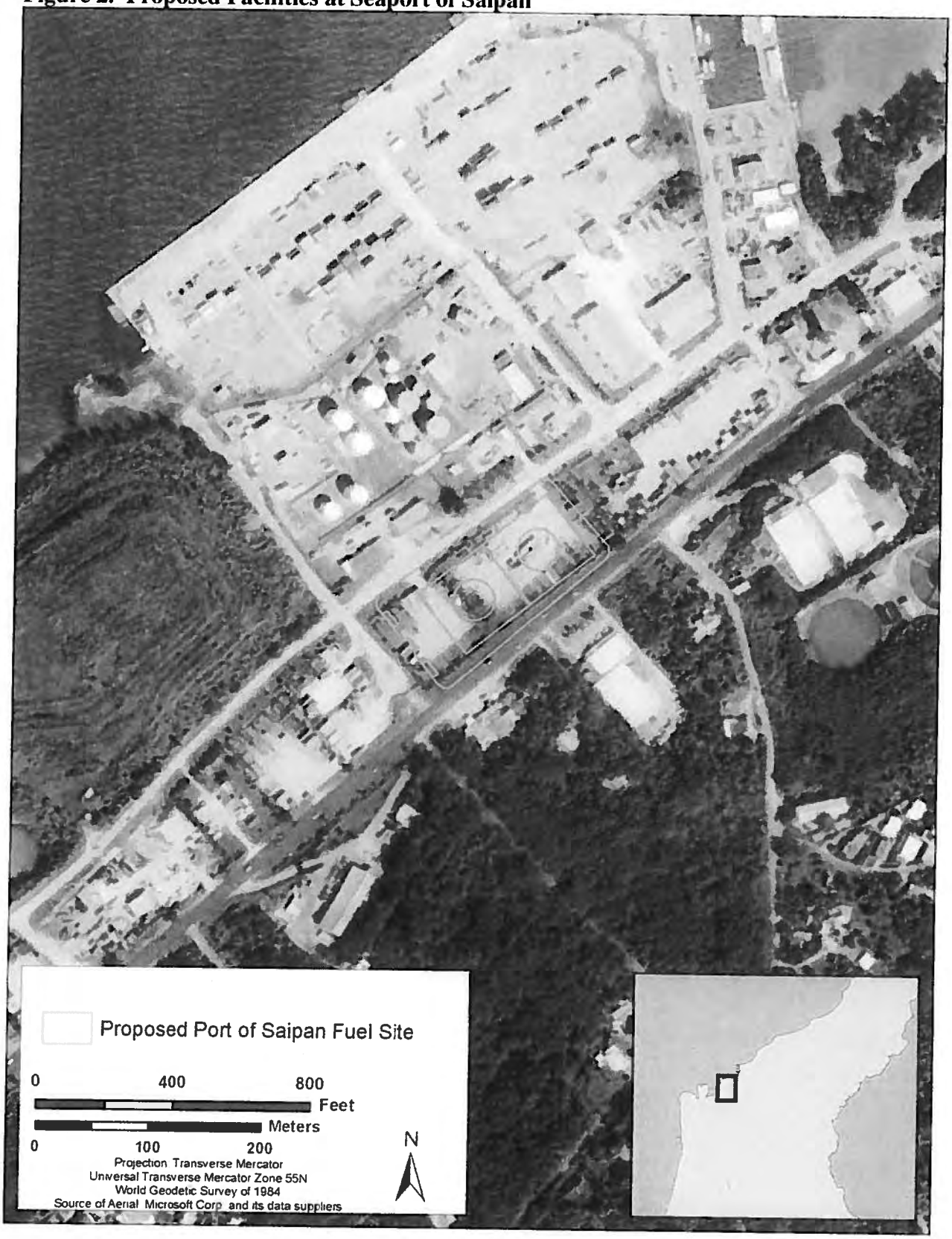


Figure 2. Proposed Facilities at Seaport of Saipan



DESCRIPTION OF THE PROPOSED ACTION

The Biological Assessment for Headquarters Pacific Air Forces Divert Activities and Exercises in Saipan fully describes the proposed construction and implementation of the Divert Project and is incorporated by reference herein. A brief description of the proposed action is provided below. This Biological Opinion will include effects from construction, training, joint military exercises, and humanitarian exercises for the lifetime of the Divert action. The purpose of the Divert project is to establish divert activity capabilities to support and conduct current, emerging, and future exercises, while ensuring the capability to meet mission requirements in the event that access to Andersen Air Force Base on Guam, or other western Pacific locations, is limited or denied. The need for humanitarian assistance can arise suddenly and without warning, such as disaster response in Japan during the 2011 earthquake and tsunami. Because of the proximity to forward-deployed forces in the western Pacific, the Marianas provides the best alternative for forward-deployed U.S. forces to train on U.S.-owned lands and to develop the proposed additional divert capabilities.

Construction

Saipan International Airport

The USAF proposes to construct and expand facilities at GSN. New facilities could include an expanded runway; associated pavement markings and lighting; parking aprons; a temporary munitions storage area; a hazardous cargo aircraft parking pad; an arm/disarm pad; an aircraft hangar; a maintenance facility; a jet fuel receiving, storage and distribution system; and navigational aids. Temporary billeting facilities for up to 700 personnel may also be developed adjacent to the airport. The total size of the facilities, if they are all constructed, would be about 24 hectares (59 acres).

Seaport of Saipan

Two hectares (approximately five acres) would be developed at the Port of Saipan for construction of fuel storage tanks. Two aboveground 2.1-million gallon tanks and associated piping would be constructed near the seaport on federally leased land. The site is located adjacent to the U.S. Army Reserve Center between Beach Road and Middle Road. Existing infrastructure at the port would be used to offload fuel from vessels. The site is in an industrial area that has been previously developed.

The timeline of Phase 1 construction is expected to be 24 to 36 months with geotechnical surveys beginning in 2013. The construction schedule for Phase 2 construction is not yet established.

Implementation

After completion of facility construction, the USAF would use GSN periodically and temporarily for ground and air activities, aircraft support activities, and other airfield ground support activities. A mix of joint cargo, tanker, fighter, and other aircraft could be diverted to or fly from the airfield. Implementation activities conducted might include, but are not limited to, divert landings and take-offs, joint military exercises, jet fueling and storage, humanitarian assistance and disaster relief airlift staging including non-combatant evacuation operations, and billeting. Implementation activities are expected to begin in 2016 or 2017.

Joint military exercises at GSN may include scheduled joint, combined, and unit-level military training activities and exercises, as described and analyzed in the Mariana Island Range Complex Environmental Impact Statement (EIS) (U.S. Navy 2010) and Biological Opinion (USFWS 2010). Aircraft and personnel participating in these combined exercises would be temporarily located at and operate from GSN for a combined total of about 60 days (eight weeks) per year. An exercise could last approximately two weeks. No more than 700 personnel would participate in exercises at GSN at any given time. Humanitarian and divert exercises would be short-term events.

A mix of joint fighter, cargo, and tanker aircraft, not to exceed the airport parking capacity could be diverted to or exercised from GSN. A maximum of six tankers or 12 fighters, or a mix of those aircraft, could operate from GSN if one parking apron is constructed. If the second parking apron is constructed, a total of 12 tankers, or 24 fighters, or a mix of those aircraft, could operate from GSN. The exact mixture of aircraft used during implementation will vary depending on mission requirements. Aircraft that would be used for joint military exercises include cargo, air mobility, and refueling aircraft such as the KC-135, and tactical or fighter aircraft such as the F-16, and F-22. The maximum capacity of aircraft anticipated to be used at GSN at any one exercise or Divert event is 24 fighters or 12 tankers, based on the construction of two parking aprons. Military exercises are anticipated to occur no more than eight weeks per year, such as in four, two-week exercises; however, longer exercises of up to four weeks could occur. The on-going joint military exercises, including joint multi-carrier strike group and joint combined exercises, could constitute four of the eight weeks of training under Divert. To model worst-case noise for an average busy day during a military exercise event, the USAF estimated that each aircraft would complete four operations per day (two arrivals and two departures). The USAF assumed that 90 percent of aircraft operations would occur during the day (7 a.m. to 10 p.m.) and 10 percent at night (10 p.m. to 7 a.m.).

In the Divert Draft EIS (USAF 2012), the USAF modeled baseline, low, medium, and high scenarios for military exercises. The USAF anticipates that the Divert military exercises covered by this Biological Opinion will fall in the range of the low and medium scenarios presented in the Draft EIS. In the baseline scenario (current conditions) approximately 140 flights operate out of GSN on a daily basis. The mix and type of aircraft assumed for each modeled scenario is based on construction of two parking aprons and could result in 12 KC-135 under the low scenario, 6 KC-135, 8 F-16, and 4 F-22 under the medium scenario, and 12 F-16 and 12 F-22 under the high scenario. Under the low scenario the number of tanker/cargo aircraft flights (a flight is a take-off and landing) per day would increase to 152 (an increase of 12 flights). Under the medium scenario the number of flights per day would increase to 164 (an increase of 24 flights). Under the high scenario the number of flights per day would increase to 202 (an increase of 62 flights).

Conservation Measures

The following conservation measures, developed in coordination with the Service, will avoid or minimize effects to the nightingale reed-warbler. They are considered part of the project description. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.

Construction

1. The USAF will purchase one credit in the Saipan Upland Mitigation Bank prior to any construction of the east parking apron (Figure 3). If a credit for Territory Six (see Figure 3) has already been purchased for implementation actions (fighter jet flights) then a credit for Territory Six will not need to be purchased a second time. In accordance with the Nightingale Reed-Warbler Programmatic Consultation and Saipan Upland Mitigation Bank Agreement and Addendum, the agreed-upon credit purchase will be as follows:
    a. Prior to the start of any vegetation clearing or earth-moving activities at the East Parking Apron, the USAF shall purchase one credit at the Saipan Upland Mitigation Bank, which is intended to provide 1.75 nightingale reed warbler territories within the Bank boundary.
    b. Upon written notification that the credit has been purchased (i.e., the CNMI government has received and deposited the funds required to purchase the credit, specified under 1.a. above, within the Commonwealth Mitigation Bank Revolving Fund authorized under CNMI P.L. 10-84 and a receipt is sent to the Service documenting the deposit), the Service will provide a letter to the USAF indicating that the credit purchase obligation has been fulfilled and on-site project activities may begin as outlined within the project description above and the remainder of the conservation measures listed below.

2. Clearing of vegetation at the east parking apron will only occur between October through December or April through June, when nightingale reed-warbler nesting activity is not at its peak.

3. The USAF will not locate a laydown yard or other temporary construction facilities in nightingale reed-warbler habitat or within a 50-meter buffer zone around reed-warbler territories.

4. When possible, the use of very noisy (greater than 60 decibels A-weighted (dBA)) heavy machinery should be limited to the non-active or non-peak breeding seasons or temporary noise barriers or buffer zones should be installed to protect nightingale reed-warblers using buffer zones or areas of connectivity.

5. Adequate plastic construction fencing will be placed and maintained around any habitat that is to be avoided (including buffer areas and adjacent parcels) to prevent impacts to habitat from construction equipment and personnel.

6. All on-site construction personnel will receive instructions regarding the presence of listed species and the importance of avoiding and minimizing impacts to these species and their habitat.

7. All on-site personnel will receive instruction regarding the brown treesnake (*Boiga irregularis*) and what to do immediately in case of a sighting.

8. The USAF will ensure that no unauthorized take of nightingale reed-warbler or destruction of their habitat occurs. The USAF will have the authority to stop all activities that may

Figure 3. Nightingale reed-warbler territories in northeast survey area.

result in such take or destruction until appropriate corrective measures have been completed. The USAF will report immediately any unauthorized impacts to the Service and CNMI DFW.

9. A litter-control program will be implemented during construction. All tools, gear, and construction scrap will be removed upon completion of work in order to prevent the attraction of non-native pests (e.g., rats). All workers will ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area are deposited in covered or closed trash containers. The trash containers shall be removed from the project area and disposed of off-site at an approved landfill at the end of each working day.

10. A brief summary report will be provided to the Service within 30 days of construction implementation to document implementation of any fencing, buffer zones, and minimization measures.

Implementation

To offset impacts from noise disturbance and habitat degradation resulting from implementation of joint military exercises as proposed in the Divert EIS, the USAF will purchase seventeen credits in the SUMB. These credits will be purchased prior to initiation of any proposed Divert exercises out of GSN that use fighter-type jet aircraft. It is expected that proposed Divert exercises will begin in 2016 or 2017. If a credit for Territory Six, which will be cleared for the east parking apron, has already been purchased then a credit for Territory Six will not need to be purchased a second time. In accordance with the Nightingale Reed-Warbler Programmatic Consultation and Saipan Upland Mitigation Bank Agreement and Addendum, the agreed-upon credit purchase will be as follows:

a. Prior to the start of proposed Divert exercises out of GSN that use fighter-type jet aircraft, the USAF shall purchase seventeen credits at the Saipan Upland Mitigation Bank, which is intended to provide 29.75 nightingale reed warbler territories within the Bank boundary.
b. Upon written notification that the credit has been purchased (i.e., the CNMI government has received and deposited the funds required to purchase the credit, specified under 1.a. above, within the Commonwealth Mitigation Bank Revolving Fund authorized under CNMI P.L. 10-84 and a receipt is sent to the Service documenting the deposit), the Service will notify the USAF indicating that the credit purchase obligation has been fulfilled and on-site project activities may begin as outlined within the project description above and the remainder of the conservation measures listed below.

Invasive Species Interdiction and Control

The USAF will be responsible for oversight of avoidance, minimization, and mitigation implementation by the construction contractors for projects associated with the proposed Divert activities. In addition, the USAF will be responsible for oversight of training, review, and guidance on Hazard Analysis and Critical Control Point (HACCP) plan development, implementation and revision during the construction phase of the project. The HACCP plans will incorporate measures to ensure invasive species, including the brown treesnake, are not transported to the CNMI from Guam via project vehicles, materials and equipment. The USAF

will be responsible for assuring that any HACCP plans are implemented by construction contractors to prevent the inadvertent movement of non-native, invasive species from other locations to the project site. The USAF will coordinate development of HACCP plans with the Service, including, but not limited to, annual meetings and reports to ensure the actions to eliminate or reduce risk are sufficient and on-going during construction activities.

Brown Treesnake Interdiction and Control

1. Per Public Law 110-417, [Division A], title III, Section 316, October 14, 2008, 122 Statute 4410 and per DoD Defense Transportation Regulations, Chapter 505 protocols, the USAF, with support from Joint Region Marianas (JRM), commits to implementing 100 percent inspection of all outgoing cargo and aircraft that are leaving from Guam associated with the Divert project. Inspections will be performed with trained quarantine officers and dog detection teams, which could be supplemented by other pest control expertise (with appropriate U.S. Department of Agriculture-Wildlife Services (USDA-WS) brown treesnake detection training and oversight) to meet 100 percent inspection goals for training activities, as required by Joint Region Marianas Instruction 5090.4. As a stakeholder, the Service will have input on the USAF protocols for implementing brown treesnake interdiction and control strategies. The USAF will work cooperatively with JRM, the Service, and USDA-WS to seek information in development of protocols for implementation of interdiction and control methods aimed at controlling brown treesnake as related to Divert training activities. On an as needed basis, the Service, USDA-WS, and USAF may request meetings to discuss interdiction and control method protocols as related to Divert military exercises.

   a. In the event military units, vehicles, and equipment accidentally leave Guam without inspection, as soon as possible, the USAF will notify: (1) USDA-WS and (2) the point of destination port or airport authorities and work with the destination port to resolve the issue. Urgency of notification is a priority so that rapid response or other actions can be implemented to reduce risk.

   b. In addition, the USAF will route inbound personnel and cargo for tactical approach exercises or humanitarian operations (that require an uninterrupted flow of events) directly to CNMI training locations to avoid Guam seaports and airfields. If Guam cannot be avoided, the USAF, in cooperation with USDA-WS and the Service, shall identify, and USAF will implement appropriate interdiction methods that may include redundant inspections (see 1c) or other interdiction methods as agreed to by the Service, USDA-WS, USAF and JRM. Additionally, tactical approach exercises will involve only cargo equipment that has not originated from areas containing a brown treesnake population or will be 100 percent inspected by certified brown treesnake canine programs. If the USDA-WS develops performance standards for this activity, the USAF will adopt those standards, provided they are compatible with military mission.

   c. The USAF is committed to implementing 100% redundant inspections after discussions with appropriate stakeholders. Redundant inspections include inspections on Guam and at the receiving jurisdiction for administrative and logistical movements that do not require a tactical approach to complete the training requirements. It is anticipated that

redundant inspections to the extent possible would utilize existing quarantine and inspection protocols at receiving ports, but in the event that there is inadequate inspection coverage the USAF will coordinate with the USDA-WS to provide additional canine inspection teams that will augment quarantine and inspection protocols at the receiving ports. Appropriate stakeholders include, but are not limited to: the Service to ensure the inspections are adequate to reduce risks to trust resources, USDA-WS, receiving jurisdictions and their supporting agencies with expertise in invasive species control, and other inspection authorities as needed to ensure inspection methods are current and revised as new techniques, technology, or data become available.

2. The USAF will also establish snake-free quarantine areas (barriers) for cargo traveling from Guam to CNMI and other brown treesnake-free areas. These barriers will be subject to: (1) multiple day and night searches with appropriately trained interdiction canine teams that meet performance standards under 1b; (2) snake trapping; and (3) visual inspection for snakes. In lieu of permanent barriers, temporary barriers may be preferable to permanent exclosures because of the variable sizes needed to handle different cargo amounts for the various training activities. The USAF will produce standard operating procedures for temporary barrier construction and use within two years of the issuance of this Biological Opinion. Standard operating procedures will ensure that temporary barriers will be constructed and maintained in a manner that assures the efficacy of the barrier and that staff maintaining and constructing the temporary barriers will receive training related to this activity prior to construction. The construction and maintenance of temporary barriers utilized for cargo traveling from Guam to CNMI and other brown treesnake-free areas must be approved by the Service prior to use. During the construction phase of this project, the existing permanent snake-free quarantine area at the Saipan seaport should be utilized for surface cargo following relevant CNMI and DoD regulations. Standard operating procedures will be developed in cooperation with the Service, U.S. Geological Survey, Fort Collins Science Center, Invasive Species Science Branch, and the USDA-WS to ensure risk to trust resources is adequately minimized. If risks are not adequately minimized, additional recommendations will be provided for incorporation into the protocols until the USAF and Service mutually agree the risk has been minimized. The Service, USAF, and other appropriate parties will meet, if necessary, to resolve concerns such that the protocols ensure risk is adequately minimized.

3. The USAF, in conjunction with the Service and JRM, will develop procedures and protocols specific to Divert training events that will support a rapid response action in the event of a brown treesnake sighting resulting from Divert activities. Divert activities and exercises will be varied in the number of aircraft and personnel, and each event will have differing logistics support capabilities depending on the nature of the event. The type and amount of logistic support will be agreed to prior to each major event. Logistic support will include consideration of both in-kind assistance through air transport, shared billeting, security detail, food, materials, and ground transportation, and financial compensation for agreed-to response actions that could not be supported by in-kind assistance, including compensation for performance of services to support the deployment and execution of rapid response search teams.

4. The USAF, working in collaboration with the Service, and USDA-WS, will decide how best to implement the Brown Treesnake Control Plan (BTS TWG 2009, 37 pp.) relevant to Divert activities. The USAF and Service must mutually agree on the Brown Treesnake Control Plan implementation.

5. The USAF will provide invasive species awareness training for all military and contractor personnel prior to all training activities. This would include a mandatory viewing of a brown treesnake educational video, distribution of pocket guides with brown treesnake information and personal inspection guidelines to be carried at all times, and assurance that brown treesnake awareness extends from the chain of command to the individual military service member

6. Due to limited availability of inspectors, trained dogs, and quarantine facilities and equipment on Guam and the CNMI, the USAF will coordinate closely with the Service, U.S. Department of Agriculture, CNMI Department of Land and Natural Resources, and Joint Region Marianas staff responsible for managing their brown treesnake program, on planning for training activities on Saipan. The USAF, along with cooperating agencies, will identify the inspection and interdiction requirements for the Divert training, including the number of trained quarantine officers and dog detection teams required. The USAF will coordinate and consult with the Service on the inspection and interdiction requirements identified by the USAF, and the Service must concur with these requirements prior to the implementation of the exercise or training activity. The USAF, along with the cooperating agencies, will develop plans to ensure that inspection personnel are available and that all requirements can be met, and will identify the support that the USAF will need to provide for the inspections. Planning for training exercises generally begins months prior to implementation of an exercise, and planning for complex training that would require a substantial number of inspectors, quarantine areas, or other personnel or equipment for control and interdiction generally begins more than a year in advance. If adequate resources, such as trained inspectors and dog teams, are not available during training activities, training will not occur until resources are available.

Prevention of Invasive Species Introductions and Spread

1. All personnel involved in Divert training will adhere to DoD Instruction 5090.10A and the 2005 Brown Treesnake Control and Interdiction Plan, which calls for individual troops to conduct self-inspections to avoid potential transport of brown treesnakes. Troops will inspect all personal gear and clothing (e.g., boots, bags, weapons, pants), hand-carried equipment and supplies and tent canvas. The intent of this measure is to minimize the potential risks and subsequent effects associated with transport of troops and personnel from Guam to the CNMI and other areas that do not have brown treesnakes.

2. In addition to self-inspections, each training action will undergo a pathway risk analysis as a tool to improve programmatic efficiency while preventing the spread and introduction of invasive species. Actions at risk of transporting invasive species will have prevention tasks identified and implemented to reduce risk. Methods employed such as HACCP planning

development and implementation by the USAF may be utilized to conduct pathway analysis. Pathway risk analysis must be completed prior to each training action being implemented.

3. The USAF is a participating agency in the development of the Micronesia Biosecurity Plan. The Micronesia Biosecurity Plan is intended to coordinate and integrate inter-agency invasive species management efforts such as control, interdiction, eradication, and research. Once completed, any portions of the Micronesia Biosecurity Plan determined to be applicable to Divert construction and training activities, will be implemented when such procedures do not unduly interfere with military training. The USAF will continue to work cooperatively with the Service and U.S. Department of Agriculture in development of protocols for implementation of interdiction and control methods in accordance with recommendations contained in the Micronesia Biosecurity Plan identified as being tied to USAF actions.

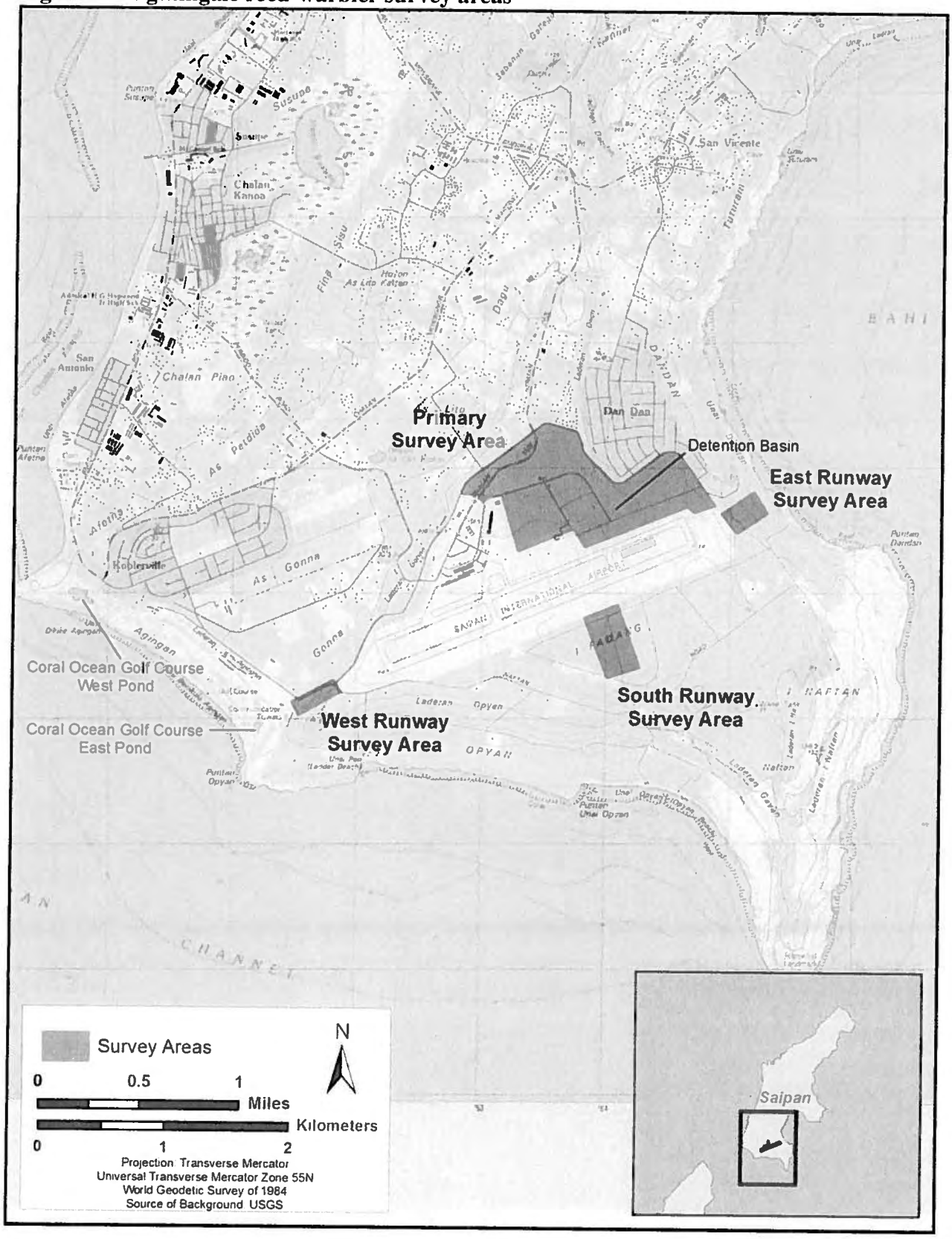
STATUS AND ENVIRONMENTAL BASELINE OF THE SPECIES

A complete Status of the Species for the nightingale reed-warbler can be found in the October 23, 2008, *Programmatic Biological Opinion Regarding the Reestablishment, Management, and Use of the Saipan Upland Mitigation Bank, Saipan* (2008-F-0033). The nightingale reed-warbler was federally listed as an endangered species in 1970 (Service 1970, p. 18321). No critical habitat has been designated for this species. The main threats currently facing the nightingale reed-warbler are: (1) habitat loss and degradation *(e.g.,* wetland destruction, upland forest conversion, habitat destruction by feral ungulates, and habitat degradation by non-native invasive plant species); (2) potential for the establishment of the brown treesnake on Saipan; and, (3) predation by introduced animals such as rats *(Rattus* spp.), cats *(Felis catus),* and possibly monitor lizards *(Varanus indicus).* Island-wide surveys for the nightingale reed-warbler were completed on Saipan in 1982, 1997, and 2007 (Engbring et al. 1986, USFWS 1998a, Camp et al. 2009). These data indicate nightingale reed-warbler populations on Saipan declined by approximately 61 percent from 1982 to 2007. While we do not have updated population information for the last 5 years, we assume that the population has continued to decline as threats to the species have not changed. Habitat loss through development has continued and predator control has not been implemented. However, most habitat loss has been permitted through use of the Saipan Upland Mitigation Bank which will have a long-term benefit to the species. The population of nightingale reed-warblers in the Saipan Upland Mitigation Bank Conservation Area has not been surveyed since 2008. From 1999 to 2008 the population fluctuated yearly but tended to remain stable over the 10-year period (CNMI DFW, unpublished data, 2013).

Environmental Baseline

Micronesian Environmental Surveyors, a contractor for the USAF, conducted avian surveys around GSN in February and March of 2012. Surveys were conducted on the northeast side of the airport where most facilities would be constructed and an area south of the runway slated for the munitions storage facility (Figure 4). Eight nightingale reed-warbler territories were defined in the northeast survey area (see Figure 3). No nightingale reed-warblers were detected south of the runway.

Figure 4. Nightingale reed-warbler survey areas



Additional nightingale reed-warbler territories are likely present in areas surrounding the airport that were not surveyed as part of the proposed project. These territories would not be subjected to construction disturbance, but are within areas that will have increased noise due to additional overflights. There is potential nightingale reed-warbler habitat in As Gonno to the northwest of the airport, east and west of the runway, and south of the runway near Obyan. Comprehensive nightingale reed-warbler surveys were not conducted in these areas, but roadside point-counts were conducted three times at east and west ends of the runway. A nightingale reed-warbler was heard at the west end of the runway, and potential habitat was observed at both ends. In addition, surveys conducted in 2007 by the Service and CNMI DFW detected two nightingale reed-warblers near the west end of the runway, confirming that there are reed-warblers in the area. It is assumed, therefore, that nightingale reed-warbler territories are present at both ends of the runway.

Using vegetation mapping, existing CNMI DFW and USFWS unpublished survey data, and information from Camp et al. (2009), we have estimated the potential number of nightingale reed-warbler territories in the non-surveyed areas around the airport. The two areas that will have the loudest noise from Divert training are the east and west ends of the runways (see Figure 4).

We estimate there are potentially four nightingale reed-warbler territories at the east and west ends of the runway. Nightingale reed-warblers are also present in habitats to the north and south of the airport. We estimate that there are potentially thirteen nightingale reed-warbler territories within approximately 500 meters north and south of the runways that may experience noise disturbance from Divert training activities.

The most recent data indicates there are approximately 229 nightingale reed-warblers in the Saipan Upland Mitigation Bank Conservation Area (CNMI DFW unpublished data 2008). There are no nightingale reed-warblers located at or adjacent to the seaport site (see Figure 2).

EFFECTS OF THE ACTION

Construction

Evaluation under the SUMB Programmatic Biological Opinion

The proposed project will clear 2.6 hectares of nightingale reed-warbler habitat for construction of the east parking apron. Project activities will include clearing vegetation and use of heavy equipment. Project impacts are assessed by determining the number of territories directly and indirectly affected by the action. Due to vegetation clearing for construction of the east apron, one nightingale reed-warbler territory will be subject to direct impacts including habitat loss, fragmentation and degradation. Indirect impacts to this territory and potential adjacent territories include increased noise during clearing and increased risk of non-native invasive species. Under the SUMB Programmatic Biological Opinion, project impacts are assessed by determining the number of territories directly and indirectly affected by the action. For habitat clearing for the east apron, impacts to nightingale reed-warblers will be minimized by purchasing one credit in the Saipan Upland Mitigation Bank commensurate with the direct and indirect impacts associated with the project, and by implementing conservation measures.

Implementation

The implementation of Divert will cause an increase in noise levels around GSN and in surrounding nightingale reed-warbler habitats. The effects analysis for implementation of Divert will therefore focus on potential noise impacts to nightingale reed-warblers from the increase in flights at GSN. This section will first review existing knowledge and literature regarding the impacts of noise on avian species, with an emphasis on military noise and its impacts on songbirds. The noise review is followed by an overview of potential impacts to nightingale reed-warblers from Divert, and then an assessment of the level of take that is expected from Divert.

Noise review

Studies on the impacts of aircraft overflights to wildlife have been primarily limited to work on ungulates (e.g., Krausman et al. 1998; Maier et al. 1998; Frid 2003; Landon et al. 2003; Krausman et al. 2004; Lawler et al. 2005), birds of prey (e.g., Andersen et al. 1989; Watson 1993; Trimper et al. 1998; Delaney et al. 1999; Palmer et al. 2003), and waterbirds (e.g. Ward et al. 1999; Conomy et al. 1998 a,b; Komenda-Zehnder et al. 2003). These studies report a wide range of reactions to overflights depending on the biology of the species, its previous exposure to overflights, whether the species is breeding, the type of aircraft, the altitude of the aircraft, and the lateral distance between aircraft and the species. The variability in these reactions and their specific circumstances make it difficult to be certain how a particular species, such as the nightingale reed-warbler, will react to aircraft overflights.

Avian behavioral responses to noise may range from flushing and body shifting to physiological responses such as an increase in heart rate or hormone balance (Brown 2000, p. 11; Barber et al. 2010, p. 181). Specific reactions will vary by species and by an individual's previous exposure to noise disturbance (Manci 1998, p. 15). Individuals with previous exposure to aircraft overflights may display less reaction to overflights then individuals without previous exposure (Andersen et al. 1989, Conomy et al. 1998b). This reduced reaction is believed to be a sign of habituation; however, the habituation may be individual or species specific. For example, Conomy et al. (1998b) found that black ducks (*Anas rubripes*) did not become habituated to noise. Larkin (1996, p. 1) in a review of noise impacts on wildlife, reported that decreased responsiveness from wildlife after repeated noise is frequently observed and attributed to habituation. However, the degree of disturbance to which a species can habituate may be limited (National Park Service 1994, p. 5.17). Francis et al. (2011a, pp. 6-7) state that overall most species, even urban-adapted species, respond negatively to noise.

Whether a bird moves away from a site of disturbance or stays on site will be dependent on the quality of the current site, the distance to other suitable sites, the relative risk of predation or density of competitors at different sites, and the investment an individual has made to a site (i.e. establishing a territory) (Gill et al. 2001, p. 266). A bird with suitable habitat nearby may avoid disturbance because it has alternative sites to go to, but a bird with no suitable habitat nearby will be forced to remain onsite despite the disturbance, regardless of whether or not this will affect survival or reproductive success (Gill et al. 2001, p. 266). The cost of moving to a new site for a territorial species could be high (Gill et al. 2001, p. 266).

Habitat Degradation

There are multiple ways for anthropogenic noise to cause habitat degradation including noise pollution, masking of avian acoustic signals, changes in predation risk, and reduction in reproductive success. Noise pollution is defined as undesirable human noise, and has increased in most environments over the last century (Ortega 2012, p. 7). Noise pollution can affect birds in numerous ways including physical damage to ears; stress, fright and avoidance responses; changes in reproductive success and in vocal communication; and interference with ability to hear predators and other sounds (Ortega 2012, p. 8). Anthropogenic noise could be a factor driving bird species out of urban areas, even when other habitat requirements are still sufficient (Slabbekoorn and Ripmeester 2007, p. 73).

Most studies on habitat degradation from noise have focused on highway and gas drilling compressor pads, and these studies demonstrate that habitat near a noise source is less suitable than habitat farther away. Francis et al. 2011b (p. 1269 and 1278) found that compressor noise at gas wells caused a five percent lower occupancy of avian species near the pads. Bayne et al. 2008 (p. 1190) found that passerine density was significantly influenced by chronic anthropogenic noise from gas compressors, and that noise levels from compressor stations affected birds up to 700 meters into the surrounding forest. Ovenbirds (*Seiurus aurocapilla*) were found to have lower pairing success near compressor pad sites compared with noiseless well pads (Habib et al. 2007, p. 176). Foppen and Deuzeman (2007; reported in Slabbekoorn and Ripmeester 2007, p. 9) found that great reed warblers (*Acrocephalus arundinaceus*) had higher densities of territories in a wetland near a busy road during two years when the road was closed, compared to years both before and after the road closure. Kuitunen et al. 1998 (p. 297) found that land bird density was lower closer to highways, but this was not the case for the only *Acrocephalus* species in the study area, *Acrocephalus schoenobaenus* (p. 299). The willow warbler (*Phylloscopus trochilus*) had a much lower density of territorial males within 0-200 meters from a highway compared to habitat farther away, yearling males were found 50 percent more often in the road zone, and the study indicated that the road zone probably serves as a sink for young males due to reduced habitat quality from noise (Foppen and Reijnen 1994, p. 99). These studies generally show that noise pollution can cause habitat degradation.

Masking

Anthropogenic noise that drowns out vocal communication between birds is called masking. Masking can have serious consequences because birds communicate vocally to attract mates and defend territories (Ortega 2012, p. 10; Slabbekoorn and Ripmeester 2007, p. 1; Barber et al. 2010, p. 180). Masking of communication necessary for territory defense and mate attraction may have a negative impact on reproductive success and exclude birds from otherwise suitable habitat (Halfwerk et al. 2011, p. 210). Halfwerk et al. (2011, pp. 217-218) suggest four mechanisms related to masking that could reduce avian reproductive success: (1) female birds interpret male songs masked by high noise as of lower quality and put less energy into the breeding cycle; (2) a noisy territory may be perceived of as being a lower quality and avoided, reducing the number of available territories for breeding; (3) increased noise levels cause physiological stress due to reduced foraging opportunities if prey are less easy to detect or because the bird has to spend more time scanning for predators; and, (4) noise could have a negative impact on parent-offspring communication.

Anthropogenic noise is typically loud and low in pitch (Slabbekoorn and Ripmeester 2007, p. 1). Birds with low-frequency signals are more likely to abandon noisy areas (Francis et al. 2011a, p. 7), including noisy roads (Slabbekoorn and Ripmeester 2007, p. 1), and birds inhabiting noisy areas may sing at a higher frequency to reduce masking by noise (Francis et al. 2011a, p. 6; Barber et al. 2010, pp. 185-186; Slabbekoorn and Ripmeester 2007, p. 3). How well a species can survive in urban and other noisy environments may depend on how well they can adjust the frequency of their vocal communication (Slabbekoorn and Ripmeester 2007, p. 3). *Luscinia megarhynchos*, an urban nightingale in Berlin, was found to sing at higher sound levels in noisy locations and raised their song volumes in response to traffic noise by singing louder on weekday mornings than weekends (Brumm 2004, pp. 434-435). Slabbekoorn and Peet (2003, p. 267) found that urban great tits (*Parus major*) at noisy locations sang with a higher frequency. Males singing at higher vocal amplitudes may be at a disadvantage due to increased energetic costs of singing loudly (Brumm 2004, p. 439). Noise pollution can also inhibit a bird's ability to detect predators (Habib et al. 2007, p. 181; Ortega 2012, pp. 13-14) or drown out alarm calls warning of approaching predators (Barber et al. 2010, p. 182 and 184).

The Service does not have data on the frequency of the nightingale reed-warbler song (Marshall 2012, pers. com.). Few songbird species rely just on low frequencies but one species that does is the great reed-warbler, and other nightingale species are known to use a wide range of frequencies, including very low ones (Slabbekoorn and Ripmeester 2007, p. 9).

Breeding

Anthropogenic noise can have negative effects on avian breeding (Halfwerk et al. 2011, p. 210; Slabbekoorn and Ripmeester 2007, p. 2; Ortega 2012, p. 10). Noise may affect egg production, incubation, brooding and nest abandonment (Ortega 2012, p. 10). Halfwerk et al. (2011, p. 210) found that females laid smaller clutches in noisier areas, and that noise recorded in April had a negative effect on the number of great tit fledglings independent of clutch size, compared to noise in March. High noise levels could lead females to breed later, allocate less energy to care of eggs and chicks, and cause communication difficulties between parents and offspring (Halfwerk et al. 2011, pp. 217-218).

Habib et al. (2007, p. 176) found that ovenbird pairing success was reduced, and more inexperienced birds were breeding for the first time, near noisy compressor sites compared to noiseless sites. This reduction in ovenbird pairing success near compressor sites was likely caused by noise interfering with a male's song, thereby inhibiting communication with females and reducing pair success (Habib et al. 2007, p. 176). Foppen and Reijnen (1994, p. 95) found that the zones nearest to a highway served as a sink for male willow warblers, and that the proportion of successful yearling males was 50 percent lower in the road zones compared to zones farther away from the highway.

There may be differences between the effects of chronic noise and intermittent loud noise in the responses of breeding birds. Birds that select nest sites with chronic noise may "accept" the noisy conditions and not abandon nests in response to the noise. However, birds that select nest sites during quiet times, and then become disturbed by noisy conditions later, may abandon nests (Ortega 2012, p. 10).

In a study of the effects of helicopter noise from the Marine Corps Air Station Miramar (MCAS) on California gnatcatcher (*Polioptila californica californica*) reproduction, Hunsaker and Rice (2006, p. 101) found that noise levels at MCAS did not affect reproductive success. California gnatcatchers found and inhabited suitable nesting sites in spite of the noise environment, and the factors affecting nest success were habitat, topography, and rainfall. Awbrey and Hunsaker (1997, p. 3177) found that fixed-wing aircraft noise at Naval Air Station Miramar was correlated with fewer California gnatcatcher nest attempts and eggs laid, but that once a nest was established with eggs in it, military aircraft noise had no detectable influence on reproductive success. In Hawaii, Vanderwerf (2000, p. 9) studied the response of Oahu elepaio (*Chasiempis sandwichensis ibidis*) at eight nests to military noise (artillery blasts ranging from 89-116 dB). No elepaio flushed from a nest in response to artillery noise. A mild response was only observed twice by the same incubating male who raised his head and scanned the area after an artillery blast then resumed preening after 1-2 seconds (Vanderwerf 2000, p. 38). Delaney et al. (2002, p. 54) found that the nesting success of red-cockaded woodpeckers (*Picoides borealis*) near Fort Stewart, Georgia, was not significantly affected by experimental and passive military training noise. However, red-cockaded woodpeckers did flush from their nests repeatedly due to nearby (less than 100 meters) artillery and blank fire events, but returned to their nests quickly and without impact to nesting success (Delaney et al. 2002, p. 59). The effects of aircraft noise on Oahu elepaio or red-cockaded woodpeckers were not tested in either study.

Birds may also suffer physical damage to their ears from loud noise (Barber et al. 2010, p. 181). Damage can occur from single blasts (>140 dBA), multiple blasts (>125 dBA) or continuous exposure to noise at greater than 110 dBA (Ortega 2012, p. 9; Dooling and Popper 2007, p. 23). Birds are able to regenerate the sensory cells of the inner ear providing a way for them to recover from physical damage to the ear from loud noise, and so do not suffer permanent hearing loss like mammals (Dooling and Popper 2007, p. 5 and p. 25). However, in their review, Dooling and Popper (2007, p. 27) state that the effects of short, intermittent, and high intensity sounds on avian hearing are much less known than that from highway noise.

Effects of Aircraft Overflight Noise on Nightingale Reed-Warblers

Upon implementation of Divert, military training flights would occur up to eight weeks a year at GSN. Exact training exercises are not defined at this time. Humanitarian operations occurring outside the eight week training time may also occur but are not expected to significantly disturb nightingale reed-warblers above current baseline conditions at the airport. The focus of this section will be the effects of increased noise from aircraft overflights on nightingale reed-warblers from eight weeks of joint military exercises at GSN.

The noise disturbance from the training will be short-term, high-intensity, repeated single pulse, and intermittent. In the areas closest to the runway the average daily noise (DNL), as presented in the medium scenario in the DEIS (USAF 2012), would increase approximately 20 to 25 dBA over baseline conditions, with average daily sound levels not rising above 83 dBA. However, the maximum noise from each individual aircraft overflight will increase from baseline conditions between 10 to 29 dBA for F-22 (or similar fighter jet) training flights, depending on proximity to the airport runways (Table 1, Figure 5). The loudest noise would occur at the east and west ends of the runway where noise from F-22 training flights could reach 118 dBA for each take-off or landing. The maximum number of F-22 flights per day would be 48, and the

noise event would last less than 60 seconds, with the maximum sound level occurring only briefly. Flights from KC-135, and similar aircraft, will also occur; however noise from these flights does not rise above current conditions and therefore no adverse effect is expected from operation of these planes.

Table 1. Noise levels (in dBA) from current aircraft operations and proposed military operations for ten points surrounding GSN in occupied or potential nightingale reed-warbler (NIRW) habitat.

	Current	Proposed Military		
Location	**767**	**KC-135**	**F-16**	**F-22**
East end of runway	89.4	95.2	115.9	118.1
West end of runway; east golf course pond	92.6	97.3	115.8	117.7
Occupied NIRW territory north of runways	85.4	79.1	105.7	108.7
As Gonno farm area; occupied NIRW territories	84.1	81.2	99.1	108.7
Obyan area south of runways	85.2	76.5	103.5	106.4
Obyan area south of runways	83.8	78.0	104.8	106.5
Occupied NIRW territory north of runways	76.5	64.7	85.7	94.5
Koblerville; occupied NIRW territories	73.3	60.0	83.3	93.0
Occupied NIRW territory north of runways	76.4	55.7	78.8	86.3
Koblerville; occupied NIRW territories	68.3	45.4	73.1	82.2

The nightingale reed-warblers that have territories surrounding GSN may be habituated to current airport noise levels, along with noise from vehicular traffic and rural residential areas. The most frequent aircraft flying currently out of GSN is the Piper Cherokee (a single-engine aircraft) with 113 daily flights, followed by the Cessna 441 (13 daily flights), the 747-200 (6 flights), and the 767-300 (6 flights) (USAF 2012, p. 3-4). The 767 is the loudest aircraft currently operating out of GSN, and is similar in noise level to the 747. Noise from 767 and 747 takeoffs and landings range from approximately 75 dBA to 93 dBA 12 times a day in areas surrounding GSN (see Table 1).

Male nightingale reed-warblers have high site-fidelity to their established territories, remaining in the same location for multiple years (Craig 1992; Mosher 2006; Johnson 2003). It is not known what levels of disturbance or habitat degradation would cause a male reed-warbler to abandon an established territory. However, as described above, some birds may be forced to stay in habitat made unsuitable by noise disturbance because suitable habitat is limited elsewhere. The nightingale reed-warbler is a strongly territorial species (Mosher 2006, USFWS 1998b) and could appear habituated to airport noise but actually be maintaining territories in the area due to habitat limitations not habituation, and may suffer fitness costs due to this. Habitat loss is considered one of the primary threats to the nightingale reed-warbler (USFWS 1998b), and this, combined with territoriality, may mean that some pairs are forced into lower-quality habitat. There are no studies comparing reproductive success of reed-warblers in undisturbed versus disturbed habitats, so it is unknown if the birds near GSN suffer fitness costs because of the noise disturbance in the area.

Nightingale reed-warblers have been observed to be tolerant of noise disturbance (Rounds pers. com. 2012). They have been observed in urban areas of Garapan, on the edges of residences, farms, and industrial areas where use of heavy equipment and construction occurs, and successfully nested with heavy equipment operating 75 meters away at a quarry site (Rounds pers. com. 2012; Gourley and Johnson 2002). While there have been no comprehensive studies of reed-warbler response to noise, it does appear that the species is tolerant to some levels of noise disturbance.

For eight weeks a year, both the noise level and frequency of aircraft flights will increase under Divert. During the non-breeding season, nightingale reed-warblers could be disturbed by military training flights while foraging or roosting. In these cases responses may include startling, fight-or-flight responses, and/or flushing. Since the noise is of short-duration, it is not expected that these responses would significantly disrupt foraging or roosting and most likely the birds will quickly return to what they were doing. Nightingale reed-warbler communication may be disrupted in the short-term if aircraft noise exceeds reed-warbler song frequency.

Eight weeks of military training during the nightingale reed-warbler breeding season could have adverse effects on breeding success for pairs with territories near the airport. The adverse effects are most likely to occur during the territory formation, nest building, egg-laying, and early incubation stages (see Awbrey and Hunsaker 1997). If military training occurred during these early stages it is possible that a pair could abandon a territory or a nest due to the new noise disturbance (Ortega 2012, p. 10). What seemed high-quality suitable habitat without the noise disturbance may degrade to unsuitable habitat after military training begins.

Incubating or brooding birds may flush off nests as with red-cockaded woodpeckers (Delaney et al. 2002, p. 55) or may stay on the nest similar to the Oahu elepaio (Vanderwerf 2000, p. 38). Because no studies have monitored reed-warbler nests during disturbance events, it is unknown how incubating or brooding nightingale reed-warblers will react to F-22s or other fighter jets flying overhead. Once a nest is established it is less likely that the pair will abandon the nest or the territory and the noise disturbance at this point is less likely to reduce reproductive success. Begging calls from nestlings or juveniles could be temporarily masked by the loud noise but because the noise is of short-duration it is unlikely to affect provisioning rates.

The noise pollution from the military training could lead to overall habitat degradation around the airport. It is possible that during training events birds could abandon territories and look for new less-disturbed habitats for breeding. Once the training session is over the habitat will become quiet again, and the same pairs, or new ones, could move back in. In a worst-case scenario a cycle could be repeated of birds abandoning and reestablishing territories and the area could become a sink for nightingale reed-warbler breeding (see Halfwerk et al. 2011, Ortega 2012, Habib et al. 2007).

Predation is a primary cause of nightingale reed-warbler nest failure (Mosher 2006; USFWS 1998b). Feral cats or rats stalking a nightingale reed-warbler are likely to prey on the birds regardless of noise. Predation from Micronesian starlings (*Aplonis opaca*) or collared kingfishers (*Todiramphus chloris*) on nightingale reed-warbler nests is possible, though not documented in the literature (Mosher 2006, p. 60). If noise disturbance causes a nightingale reed-warbler to flush from incubating or brooding at a nest it is possible an avian predator more tolerant of noise could take advantage of the absence and prey upon the nest, but again, a cat or rat is likely to predate regardless of the noise. Overall, it is not expected that noise from Divert training will cause an increase in nightingale reed-warbler predation because the noise disturbance will be intermittent and short in duration.

As described above, hearing damage from single, repeated loud noises typically occurs at noise levels greater than 125 dBA. Noise from the Divert training is not expected to rise above 120

dBA in nightingale reed-warbler habitat. Therefore, we do not expect hearing damage from the proposed training activities.

Take assessment

Guidance on potential effects of noise on endangered wildlife and when disturbance rises to the level of take was taken from USFWS (2006), Pater et al. (2009), and Dooling and Popper (2007). While nightingale reed-warblers may be disturbed by many human activities, we anticipate that such disturbance rises to the level of harassment under a limited range of conditions. For the Divert project, we are assuming that harassment may occur when nightingale reed-warblers demonstrate behavior suggesting that the safety or survival of the individual is at significant risk, or that a reproductive effort is potentially lost or compromised. Examples of this behavior include, but are not limited to:

- An adult is repeatedly flushed from a nest during the incubation, brooding, or fledging period, that potentially results in egg failure or reduced juvenile survival.
- An adult is repeatedly flushed from a nest resulting in increased energetic costs.
- An adult or juvenile abandons a territory.

The amount of incidental take of the nightingale reed-warbler that will occur is difficult to quantify because the effects of noise on nightingale reed-warblers is not well studied, and it is unknown how frequently joint military exercises will occur during the nightingale reed-warbler breeding season. For this Biological Opinion, we quantified take using the best available data on effects of noise on songbirds (described above), our knowledge of nightingale reed-warbler behavior, and best estimates of joint military exercises training schedules provided by the USAF.

We estimate that there are potentially four nightingale reed-warbler territories at the west and east ends of the runway where the loudest noise will occur. These territories will be subject to noise levels up to 118 dBA from F-22, or similar fighter jets, overflights. The maximum number of F-22 (or similar fighter jet) flights per day would be 48 and the best estimate of a training event is two weeks. This level of training and noise disturbance could cause nightingale reed-warblers to abandon territories or nests, especially if the training occurred immediately prior to or at the beginning of a nesting attempt. Birds may also have startle responses and/or flush from nests. Nightingale reed-warblers may suffer increased energetic costs due to repeated loud noises and flushing. The increased energetic costs could adversely affect reed-warblers by decreasing the energy available to them for foraging and reproduction. The noise levels in these areas could cause these four territories to become unsuitable habitat for reed-warblers, though they may still occupy the area, and breed successfully, during quiet times.

Adults displaced by habitat degradation will attempt to establish new territories in areas that may already be occupied by other nightingale reed-warblers. Since the nightingale reed-warbler is territorial, neighboring pairs are likely to aggressively confront the displaced adults. A frequently observed pattern of intra-specific passerine bird territorial behavior is that the bird defending its territory is more aggressive than an intruder and is usually successful at driving the intruder away (Van Tyne and Berger 1976). The confrontation could disrupt the neighboring pairs' normal nesting behavior patterns by taking adults away from nests during the breeding season to defend their territories. However, this disruption is unlikely to rise to the level of take.

Nightingale reed-warblers are also present in habitats to the north and south of the airport runways in areas that will experience periodic noise up to 110 dBA from military training events. These areas, within approximately 500 meters of the runways, may support up to 13 nightingale reed-warbler pairs (based on survey data for Divert and habitat estimations). In our opinion it is less likely that birds will abandon territories in these areas, but birds could flush from nests if they are startled, especially during early training events before they are habituated to the noise. The noise disturbance will increase to over 20 dBA greater than ambient nesting conditions in these areas, and that has been used by the Service as a threshold for disturbance reaching the level of take (USFWS 2006). However, the birds in these areas currently experience daily noise, from take-offs and landings of commercial aircraft, that reaches up to 90 dBA. We feel that the noise disturbance may cause increased energetic costs for nightingale reed-warblers flushed from nests due to joint military exercise; however, we do not expect this disturbance to result in reduced reproductive success. Therefore, we expect a low level of take of nightingale reed-warblers, in the form of harassment and increased energetic costs from flushing, in the 13 territories that will experience increased noise (but below 110 dBA) from joint military exercises.

Evaluation under SUMB Programmatic Biological Opinion

Due to noise disturbance from implementation of Divert military exercises, four nightingale reed warbler territories will be subject to direct impacts including habitat loss and degradation and thirteen nightingale reed-warbler territories will be subject to direct impacts of habitat degradation. Under the SUMB Programmatic Biological Opinion project impacts are assessed by determining the number of territories directly and indirectly affected by the action. For noise disturbance, ESA responsibilities will be addressed by the purchase of 17 credits and by implementing associated conservation measures.

Biosecurity

To reduce the risk of introduction and spread of non-native, invasive species via Divert activities, the USAF has proposed to implement a variety of conservation measures throughout the action area. Effective interdiction of brown treesnakes on Guam and the CNMI is critical to preventing the spread of this species. The USAF has committed to snake inspection (100% as a goal), construction of snake barriers and brown treesnake rapid response to support military training. In addition, the USAF has committed to the establishment of a biosecurity program during construction and implementation of the proposed project. Successful implementation of the biosecurity program will prevent adverse effects to listed species, and other native wildlife, from introduction of non-native species.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future non-Federal actions that are reasonably certain to occur within the area of action subject to consultation. Future Federal actions will be subject to the consultation requirements established in section 7 of the ESA and, therefore, are not considered cumulative for the proposed action. Sustenance farming, clearing, and burning are ongoing and are likely to continue to be implemented on the island of Saipan. However, use of the SUMB to off-set impacts from authorized habitat clearing will limit adverse effects to nightingale reed-warblers from habitat loss. Unauthorized clearings are also likely to continue on Saipan, further reducing the amount and quality of nightingale reed-warbler habitat. Natural disasters, such as typhoons, also occur regularly on Saipan further damaging habitat. Persecution of nightingale reed-warblers by people resentful of ESA restrictions has also been reported, and may continue in the future.

CONCLUSION

The Service anticipates that the direct and indirect effects of the proposed action will result in take of the nightingale reed-warbler in the form of harassment from noise disturbance and harm from habitat clearing. Adverse effects of the proposed actions on nightingale reed-warblers will be minimized by avoidance and minimization measures. For the nightingale reed-warbler, the Service has determined that the proposed action conforms with the SUMB Programmatic Biological Opinion based upon the nature of the action and the incorporation of avoidance, minimization, and offsetting measures as described in that document. Additionally, the status, baseline, and potential project impacts are current and consistent with those evaluated within the SUMB Programmatic Biological Opinion. After reviewing the current status, the environmental baseline, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that implementation of the proposed action discussed herein is not likely to jeopardize the continued existence of the nightingale reed-warbler.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations promulgated pursuant to section 4(d) of the ESA prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2) of the ESA, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the USAF so that they become binding conditions of any grant, permit, or permissions issued by the USAF, as appropriate, for the exemption in section 7(o)(2) to apply. The USAF has a continuing duty to regulate the activity covered by this incidental take statement. If the USAF (1) fails to assume and implement the terms and conditions or (2) fails to require the adherence to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, grant document, or other permissions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USAF must report the progress of the action and its impact on the species as specified in the Incidental Take Statement.

AMOUNT OR EXTENT OF TAKE

Based on the proposed project description and the analysis of the effects of the proposed action provided above, the Service anticipates that construction and implementation of Divert on Saipan may cause take of the nightingale reed-warbler. The Service is tracking the loss of the nightingale reed-warbler and its habitat permitted under the SUMB Programmatic Biological Opinion, and we evaluate each project to ensure that continued implementation will not result in unacceptable effects to the listed species. The conservation measures appropriate to avoid, minimize and offset project impacts as identified in the SUMB Programmatic Biological Opinion have been included within the project description above. We estimate the following forms of incidental take will occur from construction and implementation of Divert training:

1. One nightingale reed-warbler territory will be cleared for construction of the east parking apron resulting in harm of up to two adults and up to four juveniles.

2. Four nightingale reed-warbler territories could be abandoned due to habitat degradation from repeated and loud noise from fighter jet training resulting in harassment of up to eight adults and up to sixteen eggs, chicks, or juveniles.

3. Thirteen nightingale reed-warbler territories will suffer habitat degradation from noise disturbance from fighter jet training resulting in periodic, but rare, harassment of up to twenty-six adults.

Effect of the Take

The level of Incidental Take anticipated from this project is consistent with the SUMB Programmatic Biological Opinion and will not jeopardize the survival or recovery of the nightingale reed-warbler.

Reasonable and Prudent Measures

The reasonable and prudent measures given below, with their implementing terms and conditions, are designed to minimize the impacts of incidental take that might otherwise result from the proposed actions. If, during the course of the action, the level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. In addition, the action that caused the taking must cease; the action agency must immediately provide an explanation of the causes of the taking; and must review with the Service the need for possible modification of the

reasonable and prudent measures. The following reasonable and prudent measures are necessary and appropriate to minimize the effect of take on the nightingale reed-warbler. The measures described below are non-discretionary and must be implemented.

1. The USAF shall minimize the potential for harassment, harm, or mortality of nightingale reed-warblers.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the USAF must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

The following terms and conditions implement reasonable and prudent measure number one.

1(a) To the extent practicable, consistent with national security and contingency requirements, and military safety and security requirements, the USAF will notify the Service on an annual basis of upcoming Divert training events at GSN including timing and description of the joint military exercises.

1(b) The USAF will submit annual reports to the Service on the first of December of each year beginning in 2014. The purpose of the annual report is to discuss successes and failure of all avoidance, minimization, and conservation measures, and terms and conditions listed in this biological opinion in relation to the anticipated and observed impacts and incidental take. The report will include details regarding invasive species control and interdiction including which cargo/flights were inspected or non-inspected, potential level of risk associated with each cargo/flight type, and where the cargo/flights originated from for training related actions only. The reports should include explanations if specific inspections were missed and document all snake detections or other high risk incidents and the method used for the detection for training related actions only. The report will also include the number of brown treesnake kills during training actions.

The annual report will also include a description of all actions that occurred at GSN related to Divert (including humanitarian operations, flight diversions, and joint military exercises).

1(c) The USAF will convene an annual coordination meeting or conference call prior to 28 February of each year, starting in 2015, to discuss findings within the compliance report and adapt avoidance, minimization, and conservation measures to further reduce incidental take.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authority to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as suggestions

from the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibilities for these species.

1. The USAF should implement a monitoring project, using qualified avian biologists, when joint military exercises begin operating out of GSN (anticipated in 2016 or 2017). The monitoring project could occur in habitats experiencing noise above 100 dBA from take-off and landings of fighter jets (see Figure 3). The monitoring project could be used to:
   - Determine noise levels in nightingale reed-warbler territories surrounding the airport when fighter jets take-off and land at GSN.
   - Determine if take-off and landing of fighter jets from GSN cause a behavioral response (i.e. startle, alert, flushing, stress, etc.) in nightingale reed-warblers.
   - Determine the effect of take-off and landing of fighter jets from GSN on nightingale reed-warbler breeding success in areas surrounding the airport.
   - Determine population trends and territory fidelity of nightingale reed-warblers surrounding the airport.

2. The USAF should implement rat and/or cat control at nightingale reed-warbler territories, and monitor nightingale reed-warbler nest success, to determine how predator control affects breeding success.

REINITIATION-CLOSING STATEMENT

This concludes formal consultation on this action. As required in 50 CFR § 402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operation causing such take must cease pending reinitiation.

As stated in the Conclusion (above), the Service's finding of non-jeopardy is based in large part on the conservation measures. Should there be a failure to carry out any or all of the described measures, or if the measures are not effective, or if these measures are modified in any way without Service coordination, reinitiation of consultation will be required. If you have any questions regarding this Biological Opinion, please contact Rachel Rounds at (808) 792-9400.

Sincerely,

for Loyal Mehrhoff
Field Supervisor

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Appendix 1. Not Likely to Adversely Affect Determination for the Mariana Common Moorhen, Mariana Swiftlet, and Green Sea Turtle

This Appendix is in response to your request for our concurrence with your determination that the Divert Project, as described above, will not adversely affect the endangered Mariana common moorhen, Mariana swiftlet, or green sea turtle. The findings and recommendations in this consultation are based on: (1) your Biological Assessment dated August, 2012; and (2) other information available to us. A complete administrative record is on file in our office. This response is in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

Mariana common moorhen

Listing Status

The Mariana common moorhen was federally listed as an endangered species in 1984 (USFWS 1984). The recovery plan for the Mariana common moorhen was finalized in 1991 (USFWS 1991a, 55 pp.). A five-year status review completed in 2009 determined that the Mariana common moorhen still meets the definition of endangered (USFWS 2009, p. 9).

Historic and Current Distribution

The Mariana common moorhen is currently found on Saipan, Tinian, Rota, and Guam. The Mariana common moorhen is believed to be extirpated from Pagan due to the volcanic eruption in May, 1981, and destruction of vegetation by feral ungulates (Stinson et al. 1991, pp. 41–42). In 2004, it was estimated that there were approximately 90 Mariana common moorhen on Guam, 154 on Saipan, 41 on Tinian, and only two individuals on Rota (Takano and Haig 2004, p. 247 (Table 9)). On Guam, the number of Mariana common moorhens has recently decreased at the Fena Valley Reservoir potentially due to the loss of *Hydrilla verticillata,* a wetland plant used as a nesting substrate, as a result of eutrophication of the lake after a typhoon (Brooke and Grimm 2008, p. 2). While it is possible that the Fena Reservoir birds moved to other wetlands and the Guam population has not declined overall, comprehensive surveys on Guam would be needed to determine the impact of the loss of habitat at Fena Lake to the overall population. Moorhen surveys are conducted by the CNMI Division of Fish and Wildlife at 22 wetland sites on Saipan. Data from these surveys shows that population numbers were stable on Saipan from 2007-2010 (CNMI DFW 2010).

Ecology and Life History

The Mariana common moorhen prefers wetlands with diverse, non-persistent, emergent vegetation containing deep and shallow water areas with equal areas of vegetation cover and open water (Ritter and Savidge 1999, p. 286; Stinson et al. 1991, p. 39). Primary habitats (as defined in the recovery plan) include: Agana marsh, Fena Valley reservoir, and the Naval Station Marsh, Guam; Lake Hagoi on Tinian; and Lake Susupe, Puntan Muchot, and Garapan wetlands on Saipan (USFWS 1991a, pp. 4–16). Several secondary wetland habitats were identified on Guam and Saipan; only one secondary wetland (Magpo) on Tinian was considered important for the recovery of the species (USFWS 1991a, pp. 4–16).

Mariana common moorhens feed on plant and animal matter in or near wetlands (USFWS 1991a). Seale (1901, p. 31) found grass, insects, and larvae in the stomachs of the Mariana

common moorhen on Guam. Pratt et al. (1987, p. 128) reported that Mariana common moorhen eat mollusks and plants. Little is known about the reproduction of the Mariana common moorhen (USFWS 1991a, p. 17). Nests have been constructed in *Scirpus litoralis*, *Panicum muticum*, and *Cyperus* spp. (Ritter 1994, p. 128; USFWS 1996, p. 7). Birds often nest multiple times in a year and juveniles from early broods are known to stay on their natal territory and help rear siblings from later broods (Ritter 1994, p. 130; Takano 2003, pp. 4–5).

Threats

Currently, the main two threats to the Mariana common moorhen are: (1) loss and degradation of wetland habitat, including filling, alteration of hydrology, invasion of habitat by non-native plants, and unrestricted grazing of domestic and feral ungulates; and 2) predation by introduced species (USFWS 1991a, p. 19; USFWS 1996, pp. 11–12).

Conservation Needs

Only interim recovery objectives were identified in the recovery plan due to a lack of data necessary to fully understand the needs of viable populations of this species (USFWS 1991a, p. 21). The primary task is to promote the survival of the species by providing stable, productive habitat throughout the historical Mariana common moorhen range. This entails 1) securing and managing all primary habitats to maximize the habitat conditions; 2) maintaining the secondary habitats as wetlands or creating new wetlands for those that are lost; and 3) minimizing mortality from predation, poaching, and other factors including human disturbance.

Environmental baseline

In 2001, an island-wide survey produced an estimate of 154 Mariana moorhens on Saipan (Takano and Haag 2004, p. 245). The CNMI Division of Fish and Wildlife conducts quarterly surveys at 22 wetlands on Saipan. From 2007 to 2010 the total number of moorhens detected at these sites has remained stable between 70 to 80 moorhens per survey (CNMI DFW 2010, p. 44).

Surveys conducted from January to March of 2012 by USAF contractors detected a single adult Mariana common moorhen at the Coral Ocean Point golf course east pond. No moorhens were detected at the GSN water catchment basin or the Coral Ocean Point golf course west pond, and no other potential moorhen habitat is located within the action area. The Coral Ocean Point golf course east pond has an impervious lining that inhibits the growth of shoreline vegetation. The moorhen was observed roosting and taking cover under a *Bougainvillea spectabilis* plant along the northeastern shoreline. Mariana common moorhens have also been detected repeatedly at the Coral Ocean Point golf course east pond by the CNMI DFW during quarterly waterbird surveys. Due to the lack of vegetation around the golf course pond, suitable habitat for Mariana common moorhen breeding is not present, and Mariana common moorhen have not been observed nesting at either golf course pond. There are no moorhens located near the Saipan port facilities or the Saipan Upland Mitigation Bank.

Not Likely to Adversely Affect: Mariana common moorhen

The Coral Ocean Point golf course east pond is located approximately 650 meters from the southern edge of GSN and from the nearest potential construction site. Noise from construction of Divert facilities is unlikely to disturb Mariana common moorhens at the east pond because moorhens at this pond would be habituated to noise disturbance from the airport, golf course

operations, and a nearby helicopter launching pad. Mariana moorhens are not found close enough to airport runways to be at risk of a bird strike.

However, increased aircraft operations at GSN under Divert operations will cause an increase in ambient noise at the east pond. Operation of civilian 767 at GSN result in a noise level of approximately 93 dBA from at the east pond (Table 1) from take-offs and landings. Under implementation of the Divert Project, noise levels at the east pond will rise to approximately 118 dBA with take-off and landings of F-22 or similar fighter jets.

There have been numerous studies on the impacts of aircraft overflights to wildlife including studies of waterbirds (e.g., Ward, et al. 1999; Conomy, et al. 1998 a,b; Komenda-Zehnder, et al. 2003). These studies report a wide range of reactions to overflights depending on the biology of the species, its previous exposure to overflights, whether the species is breeding, the type of aircraft, the altitude of the aircraft, and the lateral distance between aircraft and the species. The variability in these reactions and their specific circumstances make it difficult to be certain how a particular species, such as the Mariana moorhen, will react to aircraft overflights.

Individuals with previous exposure to aircraft overflights may display less reaction to overflights than individuals without previous exposure (Andersen et al. 1989, Conomy et al. 1998b). This reduced reaction is believed to be a sign that these individuals have habituated to these overflights. This habituation, however, may be individual or species specific. For example, Conomy and others (1998b) found that black ducks (*Anas rubripes*) became habituated to aircraft noise with continued exposure while wood ducks (*Aix sponsa*) did not.

Given that Mariana common moorhens have been using the east pond for at least a decade, it can be assumed that these individuals have habituated to the current level of aircraft overflights. There is no moorhen habitat near Andersen Air Force Base on Guam to use as a comparison airport with high aircraft overflights. Moorhens on Saipan have also been found in other highly disturbed and noisy locations, including the flooded parking lot of an abandoned garment factory at a busy intersection on Saipan (Rounds 2012, pers com). On Guam, Mariana common moorhens nest in a pond immediately adjacent to a busy parking lot at an industrial fuel facility (Rounds 2012, pers com.). Use of these sites indicates that moorhens can tolerate high levels of human disturbance.

There will be a long-term and permanent increase in aircraft operations from the proposed Divert Project, and noise levels from aircraft overflights will increase with F-22 and other figher jets operating out of GSN. Moorhens do not breed at the east pond so disturbance of nesting birds will not occur. Moorhens using the east pond may notice the increase in noise levels from aircraft overflights. However, given their tolerance of human disturbance and habituation to current noise levels, we do not believe this disturbance will rise to the level of harass or harm as defined by the ESA. Therefore, we have determined it is discountable that a Mariana common moorhen would be adversely affected by increased aircraft overflights at GSN given that moorhens are not breeding at the site, appear tolerant of some levels of human disturbance, and are habituated to the current noise levels from GSN.

Because comprehensive biosecurity measures, including HACCP planning and redundant brown treesnake inspections, will be implemented by the USAF to keep brown treesnakes, and other invasive species, off of Saipan, we do not expect adverse effects to Mariana moorhens from introduction of invasive species.

Mariana swiftlet

Listing Status

The Mariana swiftlet was federally listed as endangered on August 27, 1984 (USFWS 1984). A five-year status review was completed in 2010 (USFWS 2010) and a recovery plan for the Mariana swiftlet was completed in 1991 (USFWS 1991b).

Historic and Current Distribution

The Mariana swiftlet is endemic to Guam and the four southern islands of the CNMI (Cruz et al. 2008, p. 233). A population also became established on Oahu, Hawaii, between 1962 and 1965 (Wiles and Woodside 1999, p. 57). Most historical information on the species comes from Guam, where it was reported as being common and the third most abundant species seen during roadside counts, but declined to approximately its current levels by the late 1970s (USFWS 1991b, p. 7). The total number of Mariana swiftlets occurring within its historical range is currently over 6,000 individuals and it currently occurs on Guam (in three known caves within the Naval Munitions Site), Aguiguan (in nine known caves), and Saipan (ten known caves), and is considered extirpated from Tinian and Rota (CNMI DFW 2010, pp. 45-46; Navy 2011, p. 4; USFWS 1991b, pp. 8, 13–14; Engbring et al. 1986, pp. 58–59). Long-term data from swiftlet surveys at 10 caves on Saipan shows that swiftlet numbers have been steadily increasing, to a total count of over 5,500 individuals in 2010 (CNMI DFW 2010).

Ecology and Life History

The Mariana swiftlet nests and roosts in limestone caves with the following characteristics: entrances typically a minimum of 2 m (6.2 ft) high; chambers with dark zones; and fresh air (USFWS 1991b, p. 2). Most birds leave their cave at dawn and return at sunset, but often return from foraging to roost in caves during the day. Swiftlets navigate through the darkest portions of caves using echolocation (Vogt and Williams 2004).

Mariana swiftlets capture prey while flying, and foraging has been observed to occur over a wide variety of habitat types, including cleared and forested areas, but they appear to favor ridge crests and open grassy savanna areas (USFWS 1991b, p. 6). Large flocks have been reported to form in the evening with birds congregating and feeding close to the ground until it is dark (Chantler and Driessens 1995, p. 130). An analysis of swiftlet guano collected from occupied caves on Saipan found that the remains of flying ants (*Formicidae*) were common, as were the remains of beetles (*Coleoptera*) (Kershner et al. 2007).

Eggs are laid in cup-shaped nests made of moss and saliva attached to cave walls or ceilings. A single egg is laid, usually between January and July, which is incubated for approximately 23 days with fledging occurring after 47 days (Reichel et al. 2007). Both adults care for the nestling which is, on average, fed by each adult 1.8 times a day (Morton and Amidon 1996).

Threats to the Mariana Swiftlet

The restricted distribution of Mariana swiftlets, along with its small population size and dependence on caves, makes the species vulnerable to threats. The causes for the decline of Mariana swiftlets are mostly unknown, but human disturbance, predation, pesticides, and disease have all been hypothesized as having a role. Swiftlets have been documented to flush or fail to enter their caves when humans are near or within their caves (Wiles and Woodside 1999, pp. 57, 61). Swiftlet sensitivity to human presence has resulted in injuries to chicks and adults and could result in damage to eggs (Wiles and Woodside 1999, p. 61). Sources of human disturbance have included Japanese soldiers during World War II, guano mining, hunters, hikers, and vandalism.

While the introduction of brown treesnake is known to have caused the extirpation of many bird species in Guam and CNMI, it is not known whether it has significantly affected swiftlets. Brown treesnake predation on Mariana swiftlets is considered to be a regular event and only those birds able to find nest or roost sites on high, smooth walls and ceilings are able to avoid snake predation. In August, 2011, seven brown treesnakes were observed climbing the walls of the Mahlec cave on Guam (Mosher 2011, pers. com.). The use of pesticides such as DDT has been suspected of causing the decline of swiftlet populations on Guam (Diamond 1984, p. 452), but the concentrations of pesticide residues found in swiftlet guano have not supported this hypothesis (Grue 1985, p. 301). On Saipan, non-native cockroaches are known to destroy swiftlet nests by consuming the saliva that holds the nests to the walls or ceilings (Cruz et al. 2008, p. 242). Savidge (1986, p. 9) investigated the role of disease in the decline of birds on Guam and found that there is no evidence that it has played a significant role. The typhoons that frequently occur in the area may cause periodic declines in swiftlet populations, but are not expected to threaten the species as a whole since the species has survived numerous such events during its evolutionary history (USFWS 1991b, p. 22).

Conservation Needs

The primary threats to the species continue to be predation by the brown treesnake and disturbance at nesting caves. However, other introduced predators and introduced insect species also may have negative impacts to the species. Efforts to minimize disturbance and control snakes and other predators at some nesting colonies have been undertaken. However, additional efforts are needed to help recover the species.

Ongoing Conservation Actions

Brown treesnake trapping occurs at the three occupied swiftlet caves on Guam on the Naval Munitions Site. No predator trapping currently occurs at caves on Saipan or Aguiguan. Quarterly swiftlet departure counts are conducted on Saipan and Guam to monitor swiftlet population numbers.

Environmental Baseline

Swiftlets have been detected foraging over most areas of Saipan, though they are less frequently detected in urban areas (Marshall 2011, pers. comm.). Ten caves are known in Saipan, in the central portion of the island; however, swiftlets are regularly seen foraging in areas where no caves have been found. The nearest swiftlet cave to GSN is more than three kilometers (2 miles) away and the nearest cave to the Saipan port is approximately 1,200 meters away (0.75 mile). There are no known caves in the Saipan Upland Mitigation Bank, though swiftlets frequently

forage there. No Mariana swiftlets were detected during bird surveys at GSN for the proposed project. Island-wide surveys conducted by the Service and CNMI DFW on established transects on Saipan detected swiftlets primarily in the central parts of the island, but swiftlets were also detected in the vicinity of GSN (USFWS 2008).

Not Likely to Adversely Affect: Mariana swiftlet

There are no Mariana swiftlet caves near the Saipan airport or seaport, and no adverse impacts to swiftlet caves from the Divert project are expected. Mariana swiftlets are not detected frequently in the vicinity of GSN. If construction noise or noise from aircraft overflights disturbs swiftlets, they will easily be able to avoid the disturbance and forage elsewhere. The clearing of 4.5 ha of second-growth forest for the Divert Project would also not adversely affect the availability of foraging habitat in the area, or on Saipan. There have been no reports of aircraft striking Mariana swiftlets and the chance of such a strike is discountable given the distance from Mariana swiftlet caves and low presence of swiftlets in the area. Mariana swiftlets may forage near the Saipan seaport; however, this is an industrial port and the low-level of construction noise from the Divert Project in this area is unlikely to adversely affect a Mariana swiftlet. Mariana swiftlets commonly forage in the Saipan Upland Mitigation Bank. Mitigation actions, such as habitat restoration and invasive species removal, for the nightingale reed-warbler that occur in the SUMB will also beneficially affect the Mariana swiftlet. Overall, effects from the proposed project are discountable. Therefore, the project may affect, but will not adversely affect, the Mariana swiftlet, and mitigation actions may benefit the species.

Because comprehensive biosecurity measures, including HACCP planning and redundant brown treesnake inspections, will be implemented by the USAF to keep brown treesnakes, and other invasive species, off of Saipan, we do not expect adverse effects to Mariana swiftlets from introduction of invasive species.

Green sea turtle

The following section summarizes sea turtle biology based on the information in recovery plans and five-year status reviews developed by the NMFS and Service (NMFS and USFWS 1998, 95 pp.; 2007, 105 pp.). Sea turtles are highly migratory, globally distributed, and generally found in tropical and subtropical waters along continental coasts and islands between 30° north and 30° south latitude and, to a lesser extent, in subtropical waters with temperatures above 20° C. The geographic range of sea turtles includes the Caribbean Sea, Atlantic, Pacific, and Indian Oceans and associated bodies of water.

Sea turtles bury their eggs in the sand in upper areas of oceanic beaches. Reproductive maturity occurs at ages ranging from 20 to 50 years and varies by species. Female sea turtles have high site fidelity to their hatching (natal) beaches, returning close to their own hatching site to lay their nests. Females may nest multiple times over a given nesting season. Nesting seasons typically occur at semi-regular intervals, with inter-nesting intervals ranging between two to more than five years depending on the species. Hatchlings emerge 45 to 90 days after a nest is laid. Emerging hatchlings navigate toward the water using visual cues; they move toward the brighter horizon and away from darker silhouettes formed by dune line, tree lines, or cliff walls (Tuxbury and Salmon 2005, p. 312). In addition to nesting, green sea turtles may also use

beaches to haul out and bask, although this behavior has never been documented in Guam or the CNMI (Kelly, 2009, pers. comm.; Wusstig 2009, pers. comm.).

Numbers of breeding green sea turtle populations in Hawaii, Australia, and Japan are increasing (Chaloupka et al. 2008, p. 299; NMFS and Service 2007, p. 13) and numbers of turtles nesting on Guam have been stable (NMFS and Service 2007, p. 13). Approximately 1,000 to 2,000 green turtles inhabit island reef areas in Guam and the southern CNMI (Kolinski et al. 2004, pp. 98, 111). In 1995 and 2001 (Tinian), 1999 (Saipan), and 2003 (Rota), the majority of individuals observed in the surrounding waters were juveniles or sub adults (Kolinski et al. 2001, pp. 59, 66; Kolinski et al. 2004, p. 107; Kolinski et al. 2006, pp. 514, 517; Pultz et al. 1999, p. 92).

In CNMI, green turtle nesting occurs from March to August with some year round nesting documented. The CNMI DFW Sea Turtle Program has monitored green sea turtle nesting activity on Saipan since 1999, and has documented 4 to 18 nests laid per year (CNMI DFW unpublished annual reports). There are two nesting beaches found within the action area: Obyan beach and Coral Ocean Point beach.

Not Likely to Adversely Affect: Green sea turtle

No green sea turtle nesting beaches will be impacted by construction of Divert facilities. Hatchlings or nesting adult females may be exposed to noise from aircraft overflights on Obyan or Coral Ocean Point beaches. Obyan beach is located approximately 1,000 meters from GSN and in the worst-case scenario would have noise levels from aircraft overflights reaching 65-70 dBA. Coral Ocean Point beach is located approximately 900 meters from GSN, and noise levels from aircraft overflights could reach 70-85 dBA in a worst-case scenario. Noise contour lines under baseline conditions do not reach either beach, indicating that current noise levels are below 65 dBA.

Given the small number of green sea turtles nesting on Saipan, and the short period of time that hatchlings or adult female green sea turtles spend on beaches, there is only a small chance that aircraft overflights, which would occur for a maximum of 8 weeks a year, reaching 85 dBA (at Coral Ocean Point) would occur at the same time a hatchling turtle or adult turtle were on the beach. Based on observations of adult green sea turtles at Obyan beach and their reactions to aircraft overflights, it is not expected that the turtles would be adversely affected by a temporary increase in noise (Summers 2012, pers. com.). Therefore, the Divert Project may affect, but will not adversely affect, green sea turtles.

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Formal Consultation for Divert Activities and Exercises at the Saipan International Airport, Commonwealth of the Northern Mariana Islands

August 20, 2013

Subject: Corrections made to Divert Biological Opinion (2012-F-0445) after signing

1. Page 11 (Brown Treesnake Interdiction and Control), paragraph 1, 1st sentence: Reference to "Public Law 110-417, [Division A], title III, Section 316, October 14,2008, 122 Statute 4410" should instead read "122 Statute 4356."

2. Page 11 (Brown Treesnake Interdiction and Control), paragraph 1, 2nd sentence: This text refers to JRM Instruction 5090.4 which is a draft instruction at this time. The applicable instructions are COMNAVMARIANASINST 5090.10A and 36 Wing Instruction 32-7004.

3. Page 13 cites a DOD Instruction 5090.10A. This should instead read COMNAVMARIANASINST 5090.10A.

APPENDIX C

CZMA Compliance Supporting Documentation

STATUS OF FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT NEGATIVE DETERMINATION FOR PROPOSED ACTIONS IN THE COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

A coastal zone negative determination (ND) assessment was submitted to Commonwealth of the Northern Mariana Islands (CNMI) Coastal Resources Management Office (CRMO) on May 18, 2012. The assessment encompassed all proposed actions described in the June 2012 Draft Environmental Impact Statement for Divert Activities and Exercises, Guam and Commonwealth of the Northern Mariana Islands. Pursuant to 15 CFR Section 930.35(c), the CNMI CRMO was not obligated to respond to the ND, and since the CNMI CRMO did not respond to the ND within 60 days, the CNMI CRMO concurrence with the ND was presumed.

The USAF is initiating additional correspondence with the CNMI CRMO regarding the Revised Draft EIS to ensure compliance with the CZMA.

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Coastal Zone Management Act (CZMA) Consistency Determination:
Negative Determination Notice

DEPARTMENT OF THE AIR FORCE
PACIFIC AIR FORCES

MAY 18 2012

MEMORANDUM FOR MS. RITA C. CHONG
DIRECTOR, COASTAL RESOURCES MANAGEMENT OFFICE
COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
P.O. BOX 10007
SAIPAN, MP 96950

FROM: HQ PACAF/A7
25 E Street, Suite D-306
JBPH-H, HI 96853

SUBJECT: Coastal Zone Management Act (CZMA) Consistency Determination:
Negative Determination Notice for Divert Activities and Exercises

1. Headquarters Pacific Air Forces (HQ PACAF) wishes to inform you of its negative determination under the CZMA regarding the subject proposed action. The Draft Environmental Impact Statement (DEIS) for Divert Activities and Exercises, (Atch 1) proposes federal action to improve an existing airport or airports and associated infrastructure in support of expanding mission requirements in the western Pacific.

2. HQ PACAF proposes to construct facilities and infrastructure at an existing airport or airports to support a combination of cargo, fighter, and tanker aircraft with associated personnel to support periodic joint military exercises and humanitarian assistance and disaster relief (HADR) efforts during times of need. Occasional emergency divert landings could also occur at the proposed improved airport. This action considers both the Saipan International Airport and the Tinian International Airport. HQ PACAF considers the Saipan Airport to be the preferred alternative location as outlined in the Draft EIS. (Atch 2)

3. The DEIS explains the details associated with our proposed action and we refer you to the executive summary for an overview of the proposed action.

4. Should you or your staff have any questions regarding this proposed action, please contact my POC, Mr. Mark Petersen at (808) 449-1078, or at mark.petersen.1@us.af.mil.

FOR KARL S. BOSWORTH
Director, Installations and Mission Support

2 Attachments:
1. Draft EIS for Divert Activities and Exercises, Guam and CNMI
2. Summary of the Proposed Action

Summary of the Proposed Action

Section 2.1 of the draft Divert Activities and Exercises EIS describes the proposed action, which includes the following:

1. **Construction Phase**. The KC-135 Stratotanker (KC-135) aircraft is indicative of tanker or cargo aircraft used by the USAF in the western Pacific. The KC-135 aircraft is being used as the design aircraft for cargo and tanker aircraft in the EIS. The following elements would be designed and then constructed or improved at the selected airport or airports:

    a. *Runway* - Potential extension of the runway up to 10,000 feet in order to meet optimal KC-135 requirements as identified by PACAF Strategy, Policy and Requirements Division. Options that would expand the runway to less than 10,000 feet, or not at all are also analyzed.

    b. *Parking apron* - The parking aprons at the airport selected for expansion would need to meet design requirements for KC-135 aircraft.

    c. *Associated pavement markings, lighting, and navigational aids*- All pavement markings, lighting, and navigational aids would be installed, upgraded, or relocated, as appropriate.

    d. *Temporary munitions storage area*- The temporary munitions storage area would mainly be used to store munitions safely from diverted aircraft until the aircraft could return to its place of origin, or proceed to its planned destination.

    e. *Hazardous cargo pad and arm/disarm pad*- The hazardous cargo pad would mainly be used to safely handle munitions or other hazardous cargo from diverted aircraft until the aircraft could return to its place of origin, or planned destination. The arm/disarm pad would be used to perform final safety checks on aircraft before takeoff by aircraft maintenance personnel. The arm/disarm pad would also be used to perform initial safety checks on aircraft after landing. The hazardous cargo pad could be designed and constructed to double as an arm/disarm pad.

    f. *Aircraft hangar*- The hangar would be a closed structure to store aircraft awaiting maintenance or being repaired.

    g. *Maintenance facility* – The maintenance facility would be used as an Aircraft Maintenance Unit/Aircraft Spares Management and for storage to assist aircraft at the proposed airfield.

    h. *Jet fuel receiving, storage, and distribution infrastructure*- USAF proposes to maintain a 30-day supply of jet fuel to be able to provide fuel to aircraft through a hydrant system. In order to maintain the 30-day supply of jet fuel, a combination of fuel tanks including bulk storage and smaller operating tanks would be required. The ability to receive jet fuel on the island and ability to transfer it to the airfield would also be required.

    i. *Billeting*- Temporary billeting, including medical, transportation, and dining services, would be required for the personnel supporting aircraft operations.

2. **Implementation Phase**. It is assumed that any mix of joint fighter, cargo, and tanker aircraft, not to exceed the design capabilities of the airport, could be diverted to or exercised from the airport

or airports selected for improvements. KC-135s would remain the design aircraft for the implementation phase. The following activities would occur at the selected airport or airports:

a. *Unscheduled/unplanned divert landings*- Unscheduled aircraft landings, also known as "divert" landings would occur; divert landings would occur at these airports if other locations in the western Pacific, for example Andersen Air Force Base (AFB), are unavailable for landing, such as during emergencies or natural disasters.

b. *Unscheduled/unplanned humanitarian airlift staging*- Humanitarian airlift staging, including non-combatant evacuation operations (NEOs), would also occur at the airport or airports proposed for improvements in the event of an emergency or disaster.

c. *Military exercises*- A limited number of scheduled joint, combined, and unit-level military training activities and exercises, as described and analyzed in the Mariana Islands Range Complex (MIRC) EIS, for which a Record of Decision (ROD) was issued on July 20, 2010, would occur. It is assumed that both unit-level training and joint military exercises would each take place annually for a combined total of 60 days per year at the airport or airports selected for improvement. This EIS addresses only the ground movements and immediate approaches and departures at the airport or airports selected for development (e.g., take-offs and landings) during unit-level training and exercises. Actual air warfare and air logistics training (i.e., above 10,000 feet) are addressed by the MIRC EIS, for which a ROD was issued on July 20, 2010.

d. *Jet fuel receiving, storage, and distribution*- A fuel delivery system, jet fuel storage, and means of fuel resupply would be required for the airport or airports selected for improvements. The ability to store fuel and transfer fuel from the receiving port to the airfield would be developed.

e. *Billeting*- Temporary billeting, including medical, transportation, and dining services, would be required for the personnel supporting aircraft operations. This could be accomplished by using under utilized local hotels or temporary facilities consisting of tents and other support on or near airport property.

Pursuant to Section 7 of P.L. 3-47 [2 CMC Section 1513] federal lands in the CNMI are excluded from the CNMI Coastal Resource Management Program. The proposed fuel tank location at the Saipan harbor would be on federal property and would be constructed with adequate containment in accordance with all applicable standards and requirements. The proposed temporary munitions storage area at the Tinian alternative site would be located within the Military Leased Area on Tinian. No "spillover impacts" on the coastal zone would be anticipated from either of these proposed facilities.

The USAF evaluated whether the construction phase and implementation phase of the Proposed Action at GSN or TNI would have reasonably foreseeable direct or indirect effects on any coastal use or resource of the coastal zone of the CNMI. The USAF determined that with the measures in place that are outlined in the table of required permits and consultations in the attached EIS, that the proposed action would be consistent to the maximum extent practicable with the enforceable policies of the CNMI Coastal Resource Management Program. The USAF would comply with permitting and consultation requirements ensuring consistency with the CNMI Coastal Resources Management Program.

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