FINAL
ENVIRONMENTAL ASSESSMENT
FOR THE
SAN NICOLAS ISLAND ROADS AND AIRFIELD REPAIRS PROJECT
NAVAL BASE VENTURA COUNTY, CALIFORNIA

U.S. Department of the Navy
Naval Base Ventura County

June 2012

ENVIRONMENTAL ASSESSMENT

Lead Agency for the EA: U.S. Department of the Navy

Title of the Proposed Action: San Nicolas Island Roads and Airfield Repairs Project

Affected Jurisdiction: Ventura County

Designation: Environmental Assessment

ABSTRACT

The Department of the Navy, Naval Base Ventura County (NBVC), California, proposes to perform a maintenance and mission-critical infrastructure project at NBVC San Nicolas Island (SNI) which includes repairing the roads and the airfield. A large amount of aggregate would need to be delivered to the island as part of this project. The NBVC supply pier at Daytona Beach is currently used to transfer supplies to the island but is not designed to handle large volumes of heavy aggregate. The Navy, therefore, proposes to use barge beach landings for offloading materials and equipment needed to complete this maintenance and mission-critical infrastructure project. This Environmental Assessment (EA) addresses the potential environmental impacts associated with construction of the proposed road and airfield repairs and the associated barge beach landings.

This EA has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [U.S.C.] § 4321, as amended); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulation [CFR] §§ 1500–1508 [1997]); and the Department of the Navy Procedures Implementing NEPA (32 CFR Part § 775 [2004]). The NEPA process ensures that environmental impacts of proposed major federal actions are considered in the decision-making process. Potential environmental impacts have been analyzed for air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste management, human health and safety, land use and coastal zone management, noise, recreation, services and utilities, transportation, and water resources.

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AHA	Activity Hazard Analysis
amsl	Above mean sea level
AOP	Activity Overview Plan
APCD	Air Pollution Control District
APE	Area of potential effect
APP	Accident Prevention Plan
ASBS	Area of Special Biological Significance
ASR	Air Surveillance Radar
ATCM	Airborne toxic control measure
ATV	All Terrain Vehicle
BA	Biological Assessment
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal/OSHA	State of California Division of Occupational Safety and Health
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CESE	Civil Engineering Support Equipment
CFR	Code of Federal Regulations
CH_4	Methane
CMLPAI	California Marine Life Protection Act Initiative
CNEL	Community noise equivalent level
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	CO_2-equivalents
CNPS	California Native Plant Society
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibels
dBA	"A-weighted" decibel scale
dBC	"C-weighted" decibel scale
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	
ESS	Energy Storage System

ACRONYMS AND ABBREVIATIONS (Cont.)

FAA	Federal Aviation Administration
FFD	Federal Fire Department
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
FR	Federal Register
GCAC	Ground Control Approach Crew
GHG	Greenhouse gas
GIS	Geographic information system
GWP	Global warming potential
hp	Horsepower
Hz	Hertz
INRMP	Integrated Natural Resources Management Plan
kW	Kilowatt
LARWQCB	Los Angeles Regional Water Quality Control Board
Ldn	Day-night noise level
Leq	Equivalent noise levels
MARPOL	International Convention for the Prevention of Pollution from Ships
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
$\mu g/m^3$	Micrograms per cubic meter
mg/m^3	Milligrams per cubic meter
NA	Not applicable
NAAQS	National Ambient Air Quality Standards
NAWCWD	Naval Air Weapons Center Weapons Division
NAVFAC	Naval Facilities Engineering Command
NAVOSH	Navy Occupational Safety and Health
Navy	Department of the Navy
NBVC	Naval Base Ventura County
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen oxides
N_20	Nitrous oxide
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
OGV	Ocean-going vessel
OCS	Outer Continental Shelf
OPNAVINST	Office of the Chief Naval Operations Instruction
OSHA	Occupational Health and Safety Administration

ACRONYMS AND ABBREVIATIONS (Cont.)

PFMC	Pacific Fishery Management Council
$PM_{2.5}$	Particulate matter with a diameter less than 2.5 micrometers
PM_{10}	Particulate matter with a diameter less than 10 micrometers
PMSR	Point Mugu Sea Range
ppm	Parts per million
PW	Public Works
RDAT&E	Research Development Assessment Testing and Evaluation
RO	Reverse Osmosis
ROCs	Reactive organic compounds
RORO	Roll-on, roll-off
SCC	South Central Coast
SECNAVINST	Secretary of the Navy Instruction
SIP	State Implementation Plan
SNI	San Nicolas Island
SOx	Sulfur oxides
sq. ft.	Square feet
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminants
TSCA	Toxic Substances Control Act
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
U.S. EPA	U.S. Environmental Agency
USFWS	U.S. Fish and Wildlife Service
V	Volt
WOUS	Waters of the United States
WW II	World War II

EXECUTIVE SUMMARY

INTRODUCTION

This Environmental Assessment (EA) addresses the potential environmental impacts associated with construction of proposed road and airfield repairs and barge beach landings (Proposed Action) at Naval Base Ventura County (NBVC), San Nicolas Island (SNI). NBVC SNI is the outermost of eight Channel Islands off the coast of southern California, 63 nautical miles south-southwest of Laguna Point at NBVC Point Mugu and 75 nautical miles southwest of Los Angeles. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] 4321) and the Council on Environmental Quality (CEQ) regulations under Title 40 Code of Federal Regulations [CFR] Parts 1500-1508, and Department of the Navy (Navy) procedures for implementing NEPA 32 CFR Part 775, and Chief of Naval Operations Instruction (OPNAVINST) 5090.1C (18 July 2011) *Environmental Readiness Program Manual*. The NEPA process ensures that environmental impacts of proposed major Federal actions are considered in the decision-making process.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to ensure the safe transport of personnel and goods on NBVC SNI. The Proposed Action is needed because of the current degraded condition of the roads, some culverts, and airfield on NBVC SNI. The Navy identified the proposed work as critical to maintaining mission readiness: the current degraded road is a safety concern for ordnance and operations transport, and sinkholes and surface deformations on the airfield pose a safety and operational hazard to mission-critical daily flights. Due to culvert deterioration and land erosion, many culverts under the roads and runway at the airfield are not functioning properly.

REASONABLE RANGE OF ALTERNATIVES

The alternatives were generated with the goal of developing a wide range of reasonable alternatives. A 1995 evaluation by the Navy of potential locations on SNI for barge beach landings and materials offloading was recently revisited for the purposes of this project. In order to maximize the success of barge landings and cargo transfer operations, and to minimize impacts to the environment and military operations, the evaluation concluded that physical criteria are necessary to support a barge delivery operation at SNI. Landings at both Daytona Beach and Coast Guard Beach meet the following criteria, and dredging is not anticipated:

- Shelter from predominant wind and swells as barge operations typically cannot be conducted in seas higher than 4 feet;
- Sufficient water depth at 650 feet offshore to accommodate a primary shipping barge, which has a draft of 20 feet when loaded with aggregate;
- Sufficient water depth to accommodate the tender barge, which has a draft of 10 feet when loaded with aggregate;
- Sufficient water depth 200 feet offshore from the high tide line to accommodate the tug boat, which requires approximately a 10-foot depth;
- A sandy entrance path from the small tender barge to the beach;
- A slightly sloped, open beach area that could accommodate safe operations of construction equipment and transfer of materials; and,
- Enough sand to create a sand ramp (if needed).

Other selection criteria needed for project locations include: (1) proximity to existing access roads; (2) space for an adequate staging area to allow for temporary storage of materials and for movement of vehicles, regardless of weather conditions; (3) an area which would sufficiently facilitate avoidance of conflicts with the Point Mugu Sea Range test, evaluation, and training activities; and, (4) an area that would minimize impacts on cultural and biological resources.

POTENTIAL ENVIRONMENTAL CONSEQUENCES

In accordance with NEPA, the Navy performed a focused analysis of the resource areas potentially affected by implementation of the four alternatives, including: air quality; biological resources; cultural resources; geology and soils; hazardous materials and hazardous waste management; human health and safety; land use and coastal zone management; noise; recreation; services and utilities; transportation; and, water resources.

As detailed in Table ES-1, the Proposed Action, Alternative 2, Alternative 3, and the No-Action alternative would have no significant impact on any resource area. Although implementation of the No-Action alternative would not meet the stated purpose and need for this project, it is included to provide an understanding of baseline conditions in the project area Implementation of the Proposed Action and Alternatives 2 and 3 would have a net beneficial impact to the following resource areas: geology and soils from reduced erosion; transportation from improved conditions on roads and the runway (which will increase safe transport of personnel, ordnance, and operations); and water resources from reduced sediment loads to drainages and the Pacific Ocean.

Table ES-1: Summary of Environmental Consequences

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Air Quality	No Significant Impact Air emissions would be well below NAAQS General Conformity standards.	No Significant Impact Air emissions would be well below NAAQS General Conformity standards.	No Significant Impact Air emissions would be well below NAAQS General Conformity standards.	No Significant Impact There would be no air emissions.
Biological Resources	No Significant Impact Minimization measures detailed in Section 2.5.2 reduce the following impacts to less than significant levels. • No federally listed plant species are known to occur on NBVC SNI. Minor and insignificant impacts to vegetation would occur along road and airfield shoulders. The majority of impacts would occur at the airfield, in grassland dominated by non-native species. • Impacts to the western snowy plover would be minimized or avoided by restricting barge landing and offloading to begin at the end of nesting season (August), when nests would be few and unlikely.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

Table ES-1: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Biological Resources (Cont.)	• Some harassment and mortality of island night lizards could occur from relocation efforts and construction activities. However, long-term beneficial impacts would occur from the Proposed Action, by improving habitat quality in drainages. Impacts to lizards would be reduced through the project design, which would minimize road shoulder work conducted in high quality lizard habitat (e.g. Owen Road area), and limit project staging to designated staging areas. Additionally, impacts would be spread over a number of years, with time for recovery of affected populations between impact events.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

Table ES-1: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Biological Resources (Cont.)	• Nesting birds are not likely to occur directly adjacent to roadsides, and vegetation clearing around culverts would be conducted outside the breeding season when feasible. When this is not practical, pre-construction surveys would be conducted for active nests within 100 feet of the project area. • Short-term impacts could occur to the San Nicolas Island Fox, from construction noise and activity, but would not be significant. Long-term impacts could occur from potential collision mortalities due to construction traffic and potentially increased speeds on the improved roads. The foxes' mobility and the Navy's measures to avoid take of the fox would reduce these impacts to less than significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

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Biological Resources (Cont.)	• Impacts to marine mammals would be short-term and insignificant. The timing of the Proposed Action is outside the breeding and pupping season, when fewer animals are hauled out on Coast Guard and Daytona beaches. A few individual pinnipeds could occur outside the breeding season and need to be displaced from the project area. • Impacts to marine flora would be temporary, reversible, and not significant. Vessels would use the clearest path of travel. • Short-term impacts to benthic invertebrates would occur from disturbance of the intertidal zone from landing barges on the beach, and to the sandy beach from grading a pathway. Suspended sediment in the water column would be temporary, limited to periods of anchoring, landing, and offloading.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

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Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Biological Resources (Cont.)	• Fish may disperse from the immediate project area, but would likely return once offloading is complete. Suspended sediments would be temporary, and would likely be similar to conditions under heavy surf or storm events. • The Proposed Action would have less than significant short-term and long-term direct impacts to WOUS, and beneficial long-term indirect impacts. Beneficial impacts would accrue through reduced erosion and sediment delivery to WOUS. Short-term direct impacts would be reduced to less than significant by implementation of standard construction erosion control practices.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.
Cultural Resources	No Significant Impact Cultural resource impacts would be avoided through archaeological monitoring, flagging and avoidance of cultural resources, and issuance of stop-work orders in the event that cultural resources are discovered during construction.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no potential impacts to cultural resources.

Table ES-1: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Geology and Soils	No Significant Impact The Proposed Action with implementation of standard BMPs for erosion control, would result in only minor amounts of erosion, and only in the short-term. Planned culvert repairs would result in minimizing undercutting and erosion of soil at several locations for the long-term, resulting in a long-term beneficial impact to geology and soils.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.
Hazardous Materials and Hazardous Waste Management	No Significant Impact By implementing the Navy's standard BMPs for management of hazardous materials, there would be no significant impacts on the use of hazardous materials or the handling of hazardous waste on NBVC SNI.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no potential impacts to hazardous materials and hazardous waste management.
Human Health and Safety	No Significant Impact Adherence to the Navy's Safety and Health Requirements Manual, the APP, and AHA would help ensure that healthy and safe conditions would occur.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no potential impacts to human health and safety.

Table ES-1: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Land Use and Coastal Zone Management	No Significant Impact The proposed airfield repairs are identified as mission critical in the AOP; proposed road repairs are identified as a mission support project. Closure of the runways to facilitate repairs is expected to last no longer than two weeks and this short-term closure is not expected to significantly affect the mission of NBVC SNI. With implementation of the minimization measures listed in Chapter 2, the Proposed Action would be in compliance with the Coastal Zone Management Act and would not result in a significant impact to coastal zone management on NBVC SNI.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.
Noise	No Significant Impact Construction noise associated with road repairs in the Nicktown area could, in the short-term, affect residents within Nicktown. Limitations on construction occurring only between 8 a.m. to 5 p.m. weekdays in Nicktown, would reduce these impacts to less than significant. There would be no long-term impacts from noise.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.

Table ES-1: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Recreation	No Significant Impact Recreational use, including fishing by Base personnel at Daytona Beach and Coast Guard Beach, would be interrupted during barge beach landings, but for a very short duration (four times between August and November during a 5-year period). NBVC SNI has no public access and is solely owned and managed by the U.S. Navy. Therefore, no significant impacts associated with access to the shore (recreational or otherwise) or land use incompatibility would occur.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current recreation setting.
Services and Utilities	No Significant Impact The Proposed Action would have a short-term, less than significant impact to services and utilities on NBVC SNI. Only three potable water barge shipments would be required over the course of the 5-year project. A maximum of 25 construction personnel would be on the island at any one time, and there would be no addition of permanent employees to the workforce on NBVC SNI.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current services and utilities setting.

Table ES-1: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Transportation	No Significant Impact During roads and airfield repairs, impacts to transportation would be short-term and less than significant: one lane would be kept open at all times, on major roads of NBVC SNI. An ordnance route would always remain open. The airfield runway may need to be closed for approximately 2 weeks during repairs. The shipping barge would use standard Vessel Traffic Separation Scheme shipping lanes. Anchorage of the shipping barge at Daytona Beach would not preclude the use of the pier by the supply barge regularly used by the Navy. Overall, implementation of the Proposed Action would result in a long-term beneficial impact to transportation by increasing safe road and runway conditions, and supporting the viability and continued use of the runway.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current transportation setting.

Table ES-1: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Water Resources	No Significant Impact Disturbance of the beaches during barge beach landings would increase turbidity of the ocean in the vicinity of the landing in the short-term: over the course of a few days, up to four times per year, for a period of five years. Ground disturbance caused by the airfield, roads, and culvert repairs, has the potential for localized erosion during construction. However, implementation of standard erosion control measures and a SWPPP, in compliance with the LARWQCB's NPDES permit requirements for discharges associated with construction activities, would greatly reduce the potential for erosion to occur. In addition, the culvert repairs would have a significant long-term benefit to ocean water quality by reducing or eliminating headcutting of existing drainage ditches and associated erosion and sedimentation of ocean waters.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.

1.0 PURPOSE AND NEED

1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] 4321) and the Council on Environmental Quality (CEQ) regulations under Title 40 Code of Federal Regulations [CFR] Parts 1500-1508, and Department of the Navy (Navy) procedures for implementing NEPA 32 CFR Part 775, and Chief of Naval Operations Instruction (OPNAVINST) 5090.1C (18 July 2011), *Environmental Readiness Program Manual*.

This EA addresses the potential environmental consequences resulting from a proposal to perform a maintenance and mission-critical infrastructure project that includes repairing roads and the airfield at Naval Base Ventura County, San Nicolas Island (NBVC SNI), California. The pier at Daytona Beach is currently used for the transfer of supplies to the island but it is not designed to handle the large volumes of heavy aggregate required for the repairs of the roads and airfield. The Navy, therefore, proposes to use barge beach landings for offloading materials and equipment needed to complete this project.

1.2 LOCATION

NBVC SNI is the outermost of eight Channel Islands off the coast of southern California, 63 nautical miles south-southwest of Laguna Point at NBVC Point Mugu and 75 nautical miles southwest of Los Angeles (Figure 1-1). SNI is owned by the Navy and is under the jurisdiction of NBVC. The island is approximately 9 miles long and 3.5 miles wide, encompassing 14,230 acres. Access to the island by the public is strictly controlled for security reasons and to safeguard against potential hazards associated with military operations. The main support and operational facilities on NBVC SNI include an airfield runway and terminal, housing and administration facilities, a power plant, a fuel farm, and a reverse osmosis potable water system.

1.3 BACKGROUND

NBVC operates SNI to support the Point Mugu Sea Range (PMSR). The 36,000-square-mile PMSR was established in 1946 and continues to provide safe and highly instrumented air and sea space that is critical in conducting controlled tests and operational training to support readiness of U.S. Armed Forces. NBVC SNI's primary mission is to support the Research Development Assessment Testing and Evaluation (RDAT&E) of sea, land, and air weapons systems.

Naval Base Ventura County
San Nicolas Island, California

FIGURE 1-1

REGIONAL LOCATION MAP

Fig1-1SNI_Facility_Location_Map.mxd
GIS map by Ed Madej TTEMI-HE.

NBVC SNI has 47 miles of roads, 22 of which are paved. The roads serve as access between facilities and are mission-critical for ordnance and operations transport. NBVC SNI has a 1.9 mile concrete and asphalt runway, control tower, hangars, and ground control approach systems (Instrument Landing System) to support daily flights to and from the mainland. RDTA&E and Airfield Operations directly support the mission of the installation and tenants, and as such, are mission-critical functions of NBVC SNI.

To support the PMSR and associated island infrastructure, bulk materials and supplies must be transported to the island and waste materials removed from the island. Currently, most materials and supplies are transported to and from NBVC SNI by a supply barge. Although the runway is long enough to land C-130 aircraft, the volume of materials and supplies necessary to maintain operations at NBVC SNI on a regular basis is too large and often unsuited for air transport.

The supply barge is generally loaded at either the NBVC Port Hueneme Harbor or the Port of Long Beach and transported to NBVC SNI by tug boat. Approximately 30 to 40 supply barge trips are required annually. Other materials shipped include heavy equipment (such as missiles, targets, launchers, and military hardware), fuel trucks, bulk construction materials, and other items not feasibly transported by aircraft.

From 1976 to 2005, supply barges were landed on several NBVC SNI beaches; most recently, Daytona Beach (Figure 1-2). In 2005, the Navy constructed a new supply pier at Daytona Beach to maximize the range of surf, weather, and tide conditions under which the barges could safely deliver supplies to NBVC SNI and to minimize safety and environmental risks associated with the beach landing method. An EA prepared in 2002 (U.S. Navy 2002a) for construction of the new pier assumed that supplies would be received at the new pier and that beach landings would no longer be necessary.

The Navy controls access to and use of the pier. A customized supply barge owned by Foss Maritime is the only vessel allowed to dock at the pier; it is under a 5-year contract with the Navy (October 1, 2009, through September 30, 2014). The supply barge regularly offloads supplies at the pier using the "roll-on, roll-off" (RORO) method.

Legend

25-foot contours

N

0.5 0.25 0 0.5 Miles

Naval Base Ventura County
San Nicolas Island, California

FIGURE 1-2

SAN NICOLAS ISLAND SITE MAP

Fig1-2SNI_Site Map.mxd; ALortie TTEMI-BLDR
Data Source: Tetra Tech EMI GIS databases

The RORO method uses transport vehicles that comply with standard street load and size limits. Approximately 300 tons of material can be transported per barge trip using the RORO method. For the RORO method, materials are transferred from the mainland in loaded dump trucks, trailers and RORO bins that are shipped to the island on the barge. The fully loaded trucks drive onto the barge at the point of origin and drive off the barge on a ramp connected to the pier at NBVC SNI.

1.4 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.4.1 Purpose of the Proposed Action

The purpose of the Proposed Action is to ensure the safe transport of personnel and goods on NBVC SNI.

1.4.2 Need for the Proposed Action

This project is needed because of the current degraded condition of the roads and runway on NBVC SNI. The Navy has identified the current degraded condition of the roads as a safety concern for ordnance and operations transport. The runway has sinkholes and surface deformities that pose a safety and operational hazard to daily flights integral to the Navy mission. Due to culvert deterioration and land erosion, the culverts under the roads and runway at the airfield are not functioning properly.

1.5 DECISION TO BE MADE

The decision to be made as a result of the analysis in this EA is firstly to determine if an Environmental Impact Statement (EIS) needs to be prepared. This EA is a decision-making document that provides the Navy with sufficient information to determine if the Proposed Action or the Alternatives would significantly affect the quality of the human or natural environment. If the EA indicates that significant impacts will occur and these impacts cannot be mitigated to non-significance, then an EIS would be prepared, as required by NEPA.

If it were determined that an EIS is not necessary, the Proposed Action or an alternative from this EA would be selected for implementation. The alternative selected will be documented in a Finding of No Significant Impact (FONSI), completing the environmental planning process and compliance with NEPA.

1.6 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

NEPA, CEQ regulations, and Navy procedures for implementing NEPA specify that an EA should address only those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact. Resources analyzed in depth in this EA include those listed in Table 1-1.

Table 1-1: Environmental Issues Studied

Environmental Issues	Potential Resource Impacts
Air Quality	Construction activities and the No-Action Alternative have been studied for impacts to air quality (Section 3.1 Air Quality)
Biological Resources	Construction activities and the No-Action Alternative have been studied for impacts to federally protected species, sensitive terrestrial and marine habitats, and jurisdictional waters (Section 3.2 Biological Resources).
Cultural Resources	Construction activities have been studied for impacts to archaeological, historic, and sacred sites (Section 3.3 Cultural Resources).
Geology and Soils	Construction activities and the No-Action Alternative have been studied for impacts to geology and soils (Section 3.4 Geology and Soils).
Hazardous Materials and Hazardous Waste Management	Construction activities and the No-Action Alternative have been studied for impacts to hazardous materials and hazardous waste management (Section 3.5 Hazardous Materials and Hazardous Waste Management).
Human Health and Safety	Construction activities and the No-Action Alternative have been studied for impacts to human health and safety (Section 3.6 Human Health and Safety).
Land Use and Coastal Zone Management	Construction activities and the No-Action Alternative have been studied for impacts to designated land uses on NBVC SNI and coastal resources such as water quality and sensitive biological resources (Section 3.7 Land Use and Coastal Zone Management).
Noise	Construction activities and the No-Action Alternative have been studied for impacts to noise levels at sensitive receptor locations on NBVC SNI (Section 3.8 Noise).
Recreation	Construction activities and the No-Action Alternative have been studied for impacts to recreational opportunities (Section 3.9 Recreation).
Services and Utilities	Construction activities and the No-Action Alternative have been studied for impacts to services and utilities on NBVC SNI (Section 3.10 Services and Utilities).
Transportation	Construction activities and the No-Action Alternative have been studied for impacts to transportation on NBVC SNI (Section 3.11 Transportation).
Water Resources	Construction activities and the No-Action Alternative have been studied for impacts to water resources at NBVC SNI (Section 3.12 Water Resources).

The following resources are not addressed further in this EA because potential impacts are considered negligible or non-existent:

- Socioeconomics: The Proposed Action would have no effect on socioeconomic indicators such as population, employment, income, housing, or schools. NBVC SNI is a military facility located 60 miles from the nearest community. No civilians or military families live on the island. The source of material and points of embarkation are established facilities that will not require additional staffing. The project will not require construction of new facilities, and thus is expected to have negligible socioeconomic impacts.

- Public Services: The Proposed Action would have no effect on public services. Public access is strictly controlled on this military installation.

- Airspace: The Proposed Action would have no effect on airspace, as it does not include the use of airspace or alter the number of scheduled planes to or from the island.

- Environmental Justice: The Proposed Action would have no effect on environmental justice. There would be no disproportionately high environmental or health impacts on low-income or minority populations.

- Visual: The Proposed Action would have no effect on visual resources. Public access is strictly controlled on NBVC SNI, and the Proposed Action would not be within view of the public.

1.7 STRUCTURE OF THIS DOCUMENT

Chapter 1 of this EA provides background information and the purpose and need for the proposed roads and runway repairs, including barge beach landings at NBVC SNI. Chapter 2 identifies the project location, describes the Proposed Action, presents the factors considered in selecting alternatives (Chapter 2.2), and summarizes alternatives that were considered but not carried forward for detailed analysis. Chapter 3 describes the affected environment and analyzes the potential environmental consequences of implementing the Proposed Action, the alternative actions, and the No-Action Alternative. Direct and indirect effects associated with this project are evaluated for each resource. Cumulative impacts are analyzed in Chapter 4. References used in preparing the EA are listed in Chapter 5. A list of EA preparers is in Chapter 6. Chapter 7 lists the individuals and agencies contacted for development of this EA.

1.8 INTERGOVERNMENTAL COORDINATION

Preparation of an EA requires coordination and consultation with appropriate government agencies to identify all applicable laws, rules, regulations, and policies. The Proposed Action was evaluated in light of these requirements. These requirements are listed in Table 1-2.

Table 1-2: Applicable Laws and Regulations Considered

Title	Citation
Antiquities Act of 1906, as amended	16 U.S.C. §§ 431-433
Archaeological Resources Protection Act (1979, as amended)	16 U.S.C. §§ 470aa-mm and Public Law 96-95
California Hazardous Waste Management	22 CCR Division 4.5
Chief of Naval Operations Environmental Readiness Program Manual	Office of CNO Instructions (OPNAVINST 5090.1C)
Clean Air Act (1994 and Amendments of 1990)	42 U.S.C. §§ 7401–7671q and Public Law No. 101–549, 104 Stat. 2399
Council on Environmental Quality Regulations	40 CFR Parts 1500–1508
Clean Water Act (1972, as amended)	33 U.S.C. §§ 1251–1387
Coastal Zone Management Act	16 U.S.C. §§ 1451–1466
Comprehensive Environmental Resources, Compensation, and Liability Act (1980)	42 U.S.C. §§ 9601–9675
Endangered Species Act (1973, as amended)	16 U.S.C. §§ 1531–1544
Executive Order (EO) 12372 Intergovernmental Review of Federal Programs (1977, 1983, and 1984)	47 Federal Register 30959
EO 11988 Floodplain Management (1977)	42 Federal Register 26951
EO 11990 Protection of Wetlands (1977)	42 Federal Register 26961
EO 11593 Protection and Enhancement of the Cultural Environment (1971)	36 Federal Register 8921
EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds and Migratory Bird Treaty Act	66 Federal Register 3853 and 16 U.S.C. §§ 703–712
EO 13112 Invasive Species (2009)	64 Federal Register 2419
Fish and Wildlife Coordination Act (1980)	16 U.S.C. §§ 2901-2912
Magnuson Stevens Fishery Conservation and Management Act, as amended (1996)	16 U.S.C. §§ 1801-1844
Marine Mammal Protection Act (1972)	16 U.S.C. §§ 1361
Migratory Bird Treaty Act (1918)	16 U.S.C. § 703 et. seq.
National Environmental Policy Act	42 U.S.C. § 4321 et seq.
National Historic Preservation Act of 1966, as amended (2004)	16 U.S.C. §§ 470–470x-6
Native American Graves Protection and Repatriation Act (1990)	25 U.S.C. §§ 3001 et. seq. and Public Law 101-601
Pollution Prevention Act of 1990	42 U.S.C. §§ 13101–13109
Resource Conservation and Recovery Act (1976)	42 U.S.C. §§ 6901–6992k
Sikes Act Improvement Act (1997)	16 U.S.C. § 670 et. seq.
U.S. Navy Regulations Implementing NEPA	32 CFR Part § 775

Notes:

CCR	California Code of Regulations
CFR	Code of Federal Regulations
OPNAVINST	Office of the Chief of Naval Operations Instruction
U.S.C.	United States Code

Military organizations are required to comply with specific instructions designed to implement environmental management and protection measures, safety policies and procedures, and other orders and directives intended to guide practices and activities potentially affecting environmental conditions at each installation or training area. These practices and activities include managing hazardous materials, minimizing disturbance to known populations of sensitive species, and avoiding archaeological resource areas.

The following agencies will be consulted on this project:

- U.S. Fish and Wildlife Service (USFWS)
- National Oceanic Atmospheric Administration/National Marine Fisheries Service (NOAA/NMFS)
- U.S. Army Corps of Engineers (USACE)
- California Coastal Commission (CCC)
- State of California Historic Preservation Office
- State Water Resources Control Board
- Ventura County Air Pollution Control District

1.9 PUBLIC PARTICIPATION

A Notice of Availability for the Draft EA was published in the *Ventura County Star* on March 2, 2012. There was a 15-day public comment period. A Notice of Availability for the Final EA and Finding of No Significant Impact will also be published in the *Ventura County Star*. Printed copies of the Final EA and FONSI will be made available to the public at the Oxnard Public Library.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 DESCRIPTION OF THE PROPOSED ACTION (ALTERNATIVE 1)

The Proposed Action (Alternative 1) consists of roads and airfield repairs on NBVC SNI with barge landings at Daytona and Coast Guard Beaches. It includes the following components:

- Roads and culvert repairs;
- Airfield repairs;
- Shipment of material by barge from the mainland to the island with landings at Daytona and Coast Guard Beaches;
- Barge deliveries and offloading;
- Construction of a temporary asphalt batch plant; and,
- Material and equipment staging.

These components are described in Sections 2.1.1 through 2.1.6. Minimization measures that would be implemented with the Proposed Action are detailed in Section 2.5.

2.1.1 Roads and Culverts Repairs

The road repair project is proposed to be completed in two phases. In Phase I, 4 segments of road totaling 5.65 miles would be repaired (Figure 2-1):

- 2,645 feet along Owen Road south of Nicktown;
- 9,440 feet along Jackson Highway, west of Radar Row;
- 7,775 feet along Monroe Drive; and,
- 9,950 feet along southern Shannon Road.

In Phase II, 5 road segments totaling 6.8 miles would be repaired (Figure 2-1):

- 6,750 feet along the continuation of Owen Road through Nicktown to the north;
- 10,250 feet along the continuation of Jackson Highway to the northwest;
- 8,430 feet along Ordnance Alley and Tufts Road west from Shannon Road;
- 5,200 feet along the continuation of Shannon Drive to West NAVFAC Road; and,
- 5,250 feet along streets within Nicktown.

Thousand Springs
Tender Beach
Tranquility (NAVFAC) Beach
Cissy Cove
Tufts Road
Shannon Road
Owen Road
Public Works
Storage Yard
Nicktown
Owen Road
Beach Road
Former Borrow Pit
Coast Guard
Beach
Proposed Temporary
Asphalt Batch Plant
Jackson Highway
Monroe Drive
Monroe Borrow Pit
Contractor Yard
Airfield Laydown Area
Supply Pier
Daytona Beach
PACIFIC OCEAN

Legend

- Phase I Culvert Repairs
- Stockpile and Storage Areas
- Staging Areas: Existing Dirt Pullouts and Paved Access Areas
- Proposed Beaches
- Previously Analyzed Beaches
- Phase I Road Repairs
- Phase II Road Repairs
- Roads
- Airfield

N

0.5 0.25 0 0.5 Miles

Naval Base Ventura County
San Nicolas Island, California

FIGURE 2-1

SAN NICOLAS ISLAND ROADS AND AIRFIELD REPAIRS PROJECT

Fig2_1SNI_RdRep_Locations.mxd; ALortie TTEMI-BLDR
Data Source: Tetra Tech EMI GIS databases

Existing road widths vary from approximately 22 to 25 feet with undefined earthen shoulders between 0 and 5 feet wide. Proposed roads repairs would occur within the disturbed footprint of the existing road right-of-way which includes existing shoulders. The depth of the roadbed and shoulders stabilization would not exceed the existing depth of previous road base disturbance, which likely extends 20 inches below the top of the pavement. Road surfaces would be repaired using best waste stream reduction management practices. Water for hydration and soil compaction would be obtained from island domestic water sources and transported to the construction area using water tankers. The new asphalt pavement would be prepared using shipped and stockpiled aggregates mixed at the proposed temporary asphalt batch plant site on Beach Road. The proposed asphalt plant is described in Section 2.1.4 and shown on Figures 2-1 and 2-4.

Roads shoulder repairs would be kept to a minimum and would not extend beyond existing shoulder footprints. Minimal fine surface grading of the shoulders may be necessary in some areas to facilitate cement stabilization treatment of road bases and to prevent the road surfaces from being undermined and eroded.

The Navy proposes to repair all existing degraded culverts and drainage courses crossing the roads repair footprint. Eight culverts would be repaired in Phase I, up to ten in Phase II, and one culvert will be repaired at the airfield. The Proposed Action would: (1) replace failed corrugated metal pipes with plastic storm drain pipe; (2) construct new concrete head wall systems; and (3) regrade the existing earthen flow line of the drainage course through the culverts to minimize future erosion. Additional culvert repairs and modifications would be made where existing drainage courses are deeply eroded. In these areas, a sloped underground plastic storm drain pipe would be installed. An approximately 5 to 10-foot-wide area on either side of the drainage courses and culverts would be disturbed by installing larger storm drain pipe and regrading the flow line of the drainage course at its inlet and outlet, where needed. Most of the culvert repairs would involve approximately 500 square feet of short-term (temporary) disturbance on either side of the road (for a total of 1,000 square feet of disturbance per culvert). Four culvert repairs would require more extensive modification because the existing drainage courses are deeply eroded. For these culverts, approximately 1,000 square feet would be temporarily disturbed on either side of the road, for a total of 2,000 square feet of short-term disturbance per culvert. The total disturbance for culvert repairs along roads is approximately 0.21 acre in Phase I and up to 0.28 acre in Phase II (Table 2-1). Best management practices (BMPs) to be followed during culvert repairs are described in Section 2.5. When construction is complete, disturbed areas would be revegetated with NBVC-approved native vegetation.

Table 2-1: Road and Culvert Repairs Summary

Project	Project Components	Area and/or Length of Activity	Material Required*	Area of Disturbance	
				Long-Term	Short-Term***
Phase I	Roads section stabilization, widening, asphalt resurfacing and shoulder repair	5.65 miles	17,500 tons	4.11 acres	2.05 acres
	Culvert repairs	0.21 acre	NA	0	0.21 acre
Phase II	Roads section stabilization, widening, asphalt resurfacing and shoulder repair**	6.8 miles	26,000 tons	4.95 acres	2.08 acres
	Culvert repairs	0.28 acre	NA	0	0.28 acre

Notes NA Not Applicable
* Class II base material and concrete aggregates
** Phase II roads impacts includes 1.1 miles of north Owen Road that will involve only 3 feet of long-term disturbance to each shoulder. No short-term disturbance will occur on either side of the roadbeds.
*** Short-term means that the area will be disturbed by construction equipment, but will be revegetated. Negligible long-term disturbance could occur in areas where culvert repairs result in slightly larger culvert footprints within drainages.

Each road repair segment would require temporary staging. Staging locations for road repair work would be sited in existing dirt pullouts and paved access areas identified on Figure 2-1.

Approximately 43,500 tons of aggregate would be required for Phase I and Phase II roads repairs. Approximately 350,000 gallons of water would be required for the roads repairs. There are multiple sources of water for use on NBVC SNI. A reverse osmosis (RO) plant provides most of the drinking (potable) water. When needed, 375,000-gallon water barge shipments are received and moored just off of Coast Guard Beach and pumped to holding tanks on the upper elevations of the island. Construction (non-potable) water is seasonally available in smaller quantities from several springs on the island.

The proposed construction would not occur at night, but could occur on weekends to minimize impacts to traffic flow. When feasible, the full width of the road would be worked on at one time. Otherwise, one lane would be left open at all times, with no proposed off-road or other road detours. During the course

of the Proposed Action, an ordnance pathway would always remain open, to avoid conflicts with the Point Mugu Sea Range test, evaluation, and training activities. Culvert repairs would require closing the road completely, so traffic would be re-routed away from the work site.

The Proposed Action would also include conducting spot repairs of surface degradations that may occur along Beach Road due to the increase in traffic over the course of the project.

2.1.2 Airfield Repairs

Three construction projects are proposed in the existing airfield right-of-way. In addition, repairs to one culvert located outside the right-of-way at the runway perimeter are proposed (Figure 2-2):

- Reconstruct a 200-foot by 350-foot-long section of airfield runway near the Instrument Landing System tower;
- Reconstruct and pave 25-foot wide shoulders along the existing runway; and
- Repair eroded and failed airfield culvert drainage systems.

BEACH ROAD

BEACH ROAD

FAILED CMP FLUME DRAINAGE SYSTEM REPAIR PROJECT - SEE ATTACHED PHOTO

PROPOSED CONTRACTOR STAGING AND LAYDOWN AREAS FOR TAXIWAY & RUNWAY SHOULDER REPAIRS (MAX. TOTAL = 6)

AIR TERMNAL BLDG. SN155

TRAFFIC CONTROL TOWER BLDG. SN145

25' WIDE RUNWAY AND TAXIWAY SHOULDER REPAIR PROJECT TYPICAL

MONROE DRIVE

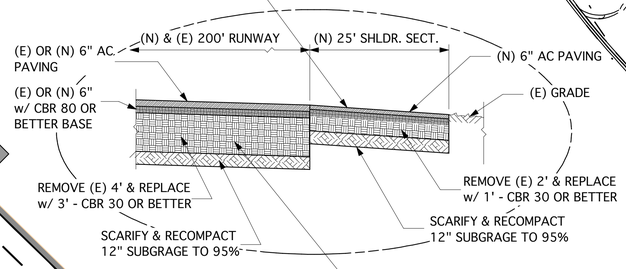
CONTACTOR YARDS, LAYDOWN AND STAGING AREAS FOR REPAIR PROJECTS

TAXIWAY ROAD

BEACH ROAD

COAST GUARD BEACH - A PROPOSED BEACH LANDING SITE

PROPOSED TEMPORARY ASPHALT PLANT SITE



Runway/Taxiway & Shoulder Section

NO SCALE

BEACH ROAD

200' WIDE x 350' LONG RUNWAY REPAIR PROJECT

ILS TOWER

SNI - Airfield Repair Projects Plan

GRAPHIC SCALE: 0 20' 60' 120' 200' 400' 800'

N

NAVAL BASE VENTURA COUNTY, CALIFORNIA

SAN NICOLAS ISLAND

AIRFIELD REPAIR PROJECTS PLAN

SHEET I.D.

Figure 2-2

SHEET: 1 OF 1

07B-0307;SNI-OLF Repairs Fig 2-2.mcd

The existing asphalt pavement section would be ground in place (approximately 2,850 tons of asphalt concrete grindings) and moved to a stockpile in the airfield area to be reused as processed material base in the reconstructed runway section. Up to 4 feet of the existing native or fill sub-grade material would be excavated and stockpiled in Monroe Borrow Pit located off Monroe Drive (Figure 2-1). The reconstruction of the runway section would include a minimum of 12,600 tons of new sub-grade and base material and 4,900 tons of new 12-inch-thick asphalt pavement surface. The airfield would likely be unusable for the duration of construction, which is estimated to take approximately two weeks.

NAVFAC P971 Airfield and Heliport Planning Criteria require 25-foot paved shoulders on the runway and taxiways. The existing shoulders are a non-engineered section of native or fill soils. Runway and taxiway shoulders would be reconstructed by excavating the existing surface soils 2.5 feet deep and stockpiling the material in the designated airfield laydown area shown in Figures 2-1 and 2-2. The bottom of the excavation would be compacted and a new 18-inch-thick base section, consisting of Class II aggregate material, would be spread and compacted. On top of this, a new 6-inch-thick asphalt pavement surface, about 35,000 tons, would be laid on the new base material. The shoulder repair work may be accomplished, under restricted conditions, while the airfield remains operational.

For the culvert repair at the perimeter of the airfield right-of-way, the Navy proposes to replace a corrugated metal half-pipe drain, and rebuild the concrete collection structure. The outfall is located on an approximate 40 percent slope and has undergone major erosion; therefore, this task would also involve laying back the existing earthen drainage channel, benching, and compacting the slopes to create a new flow line. The repair would occur in areas previously disturbed by original construction of the fill slope and culvert. Concrete waste would be stockpiled in the Public Works Storage Yard in Nicktown for future grinding and reuse (Figure 2-1). The culvert may be repaired while the airfield remains operational. Access to the repair will occur from the airfield and below the airfield from Beach Road. The total area of disturbance for the airfield culvert repair is 1.0 acre of short-term disturbance. Table 2-2 details the project area and aggregate material requirements.

The airfield repairs would require up to six staging areas of approximately 1.5 acres each. Proposed locations include three in the infield and three at the northern perimeter (Figure 2-2). Staging may also be located on the runway or taxiway itself, depending on airfield operational needs.

Table 2-2: Airfield Repairs Summary

Project	Project Components	Project Area	Material Required*	Area of Disturbance	
				Long-Term	Short-Term
Airfield Repairs	Shoulder strengthening and asphalt surfacing	1,000,000 sq. ft.	151,500 tons	23 acres	0 acre
	Culvert repair	1.0 acre	TBD	0	1.0 acre
	Staging	9 acres	0	0	9 acres

Notes TBD = To Be Determined
* Class II base material and concrete aggregates

2.1.3 Barge Deliveries and Offload

The Proposed Action includes barge landings on the beach because the volume of aggregate exceeds the design capacity of the pier. The Navy proposes to deliver materials to NBVC SNI by landing barges on the beach at Daytona and Coast Guard Beach (Figures 2-1, 2-3, and 2-4). Up to four separate deliveries would occur each year for 5 years. The Navy has historically used both of these beaches for barge landings. Because both beaches are haul-out sites for California sea lions and elephant seals, and Pacific harbor seals haul out at west Coast Guard Beach, beach landings would occur from August 1 through November 30, outside the breeding season and when these species are present only sporadically and in lower numbers than in other times of the year (Section 3.2 Biological Resources).

A primary shipping barge capable of holding up to 13,000 tons of stockpiled material would be anchored approximately 650 feet offshore from either beach. Equipment not previously shipped to NBVC SNI on the supply barge and the shipped aggregate would be transferred from the primary shipping barge to a smaller "tender" barge capable of landing on the beach. Aggregate transfer from the primary to the tender barge would use a conveyor belt or loaders. The tender barge, which is approximately 100 feet by 60 feet, or an Amphibious Tender Barge, which is 244 feet by 54 feet, would land on the beach after it has been loaded with approximately 2,000 tons from the primary shipping barge. Multiple beach landings and offloading to dump trucks (that were previously shipped on the supply barge) would be required to transfer the material. Transfer of material from the tender barge to the dump trucks on the beach would use either a conveyor belt or bucket loader.

CL. 20' WIDE
K-RAIL OPGN.

A

A

DAYTONA
BEACH

0.5' HI BERM CL.

CL. 0.5' HI BERM

SAND BORROW
AREAS, IF REQ'D

≈ 0'

10'
BERM

40'

40'

10'
BERM

35'

30'

35'

≈ - 5'

POSSIBLE
ADD'L DISTURB.

50'

100' PROP.
DISTURB.

50'

POSSIBLE ADD'L
DISTURBANCE

200' LIMIT OF POSSIBLE
DISTURBED BEACH AREA

- 10'

CL. OF LANDING & 30'
WIDE ACCESS WAY

- 15'

- 20'

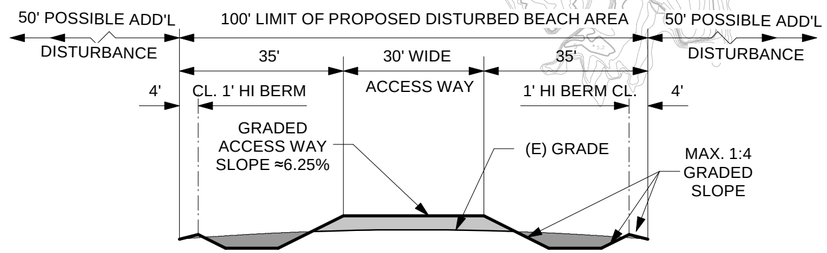
- 25'

PACIFIC OCEAN

0' 50' 200'

20' 100' 500'

GRAPHIC SCALE: 1 inch = 100 ft.



NOTE: - CUTS AND FILLS TO BALANCE WITHIN 100' LIMIT, IF POSSIBLE.
- @ COMPLETION OF OFFLOAD, BEACH TO BE RESTORED TO EXISTING

A

Access Way Section

NO SCALE

NAVAL BASE VENTURA COUNTY, CALIFORNIA

SAN NICOLAS ISLAND

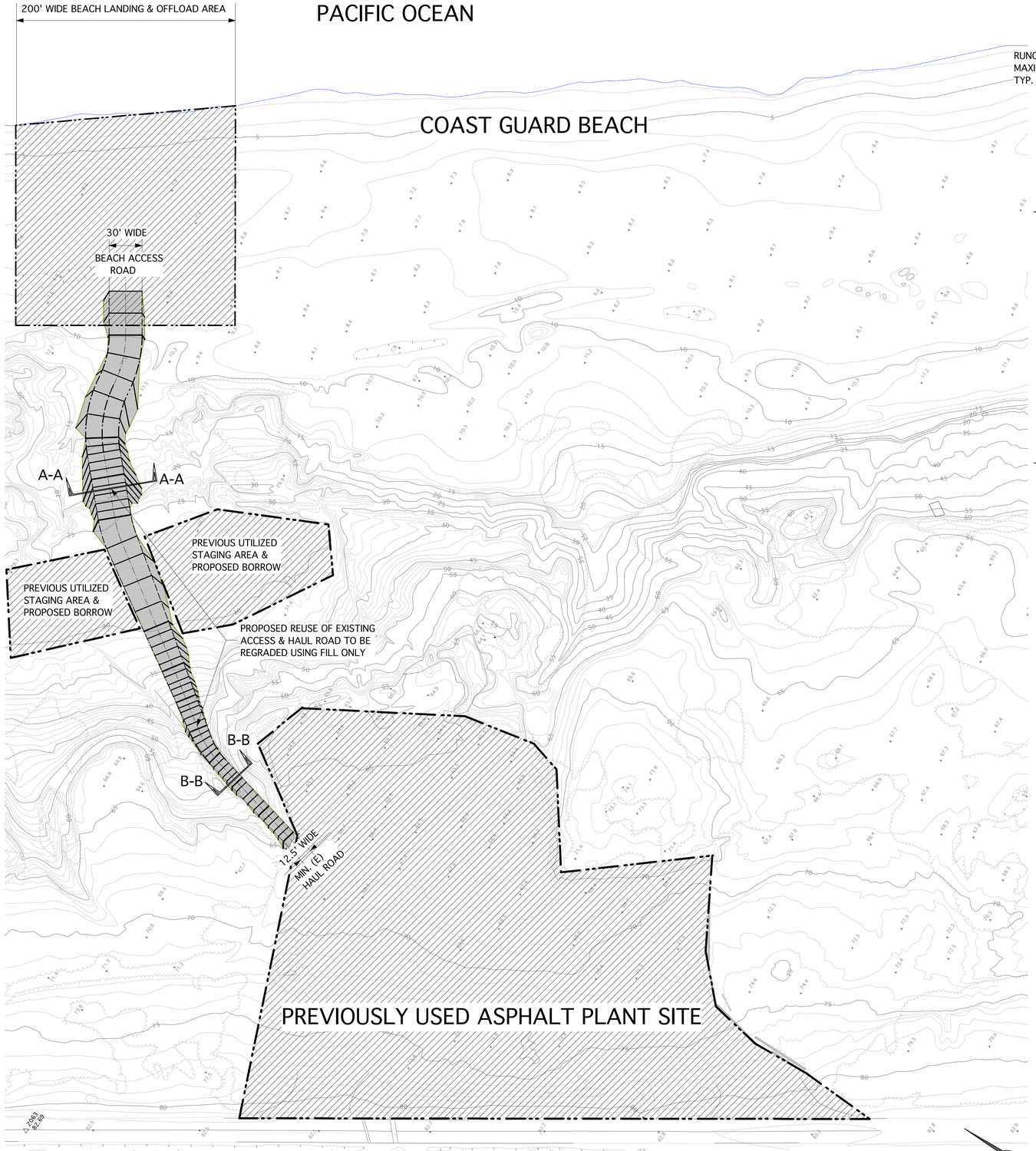
DAYTONA BEACH PLAN

SHEET I.D.

Figure 2-3

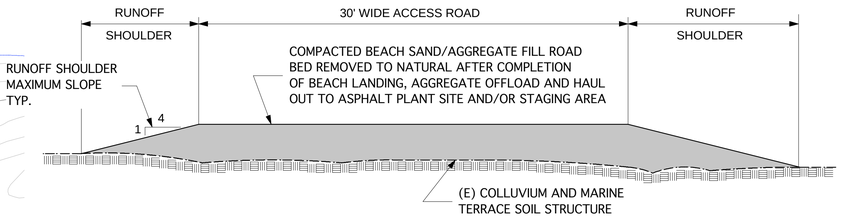
SHEET: 1 OF 1

07B-0307;DaytonaBeachPlan Fig 2-2.mcd



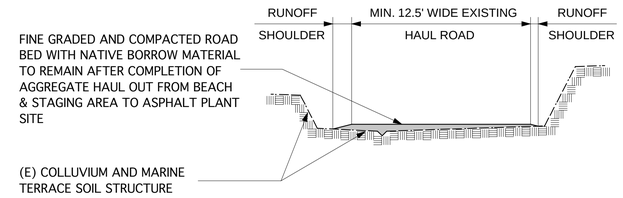
Coast Guard Beach Landing Aggregates Haul Road Grading Plan

SCALE 1" = 50' GRAPHIC SCALE : 0 15' 50' / 5' 30'



Section A-A

SCALE 1" = 5' GRAPHIC SCALE : 0 1.5' 5.0' / .5' 3.0' 10.0'



Section B-B

NOTE:
FOR ITEMS NOT SHOWN OR NOTED
SEE SECTION A-A

SCALE 1" = 5' GRAPHIC SCALE : 0 1.5' 5.0' / .5' 3.0' 10.0'

NAVAL BASE VENTURA COUNTY, CALIFORNIA

SAN NICOLAS ISLAND

COAST GUARD BEACH &
ASPHALT PLANT SITE PLAN

SHEET I.D.
Figure 2-4

SHEET: 1 OF 1

07B-0307;CoastGuardBeach-Fig 2-3.mcd

The 43,500 tons of aggregate necessary for the proposed Phase I and Phase II road repairs would be delivered in approximately three primary barge shipments. Each primary barge shipment would be transferred and offloaded over approximately 5 days. Airfield repairs would require approximately 151,500 tons of aggregate, delivered in 12 primary barge shipments. The source of material and points of embarkation from the mainland would be identified by the contractor. The shipping barge would use established facilities on the mainland and designated Vessel Traffic Separation Scheme shipping lanes when required. Weather and swell conditions could reduce the number of barge deliveries in a given year, or even prohibit deliveries altogether. Therefore, up to four primary barge shipments are proposed during each project year to allow for weather-related contingencies. The approximate schedule for delivery of aggregate is detailed in Table 2-3 below.

Table 2-3: Barge Delivery Summary

Project	Material Required	Number of Primary Shipping Barge Deliveries	Estimated Delivery Schedule	
Roads Repairs (Phase I and Phase II)	43,500 tons	3*	Year 1	2 x 13,000 tons
			Year 2	1 x 8,100 tons
			Year 3	1 x 9,400 tons
Airfield repairs	151,500 tons	12**	Year 2	2 x 13,000 tons 1 x 4,900 tons
			Year 3	3 x 13,000 tons 1 x 3,600 tons
			Year 4	3 x 13,000 tons
			Year 5	3 x 13,000 tons

Notes:

* Three primary barge shipments for roads repairs includes two full 13,000 ton shipments, and two co-mingled shipments, shared with airfield aggregate material (8,100 tons in Year 2 and 9,400 tons in Year 3).

** Twelve primary barge shipments for airfield repairs includes eleven full 13,000 ton shipments, and two co-mingled shipments shared with road repair aggregate material (4,900 tons in Year 2 and 3,600 tons in Year 3).

Equipment such as trucks and other RORO equipment would be shipped to NBVC SNI on the existing Navy supply barge in advance and returned to the mainland if not needed for construction. Additional equipment needed to facilitate the beach landing operation would be offloaded with the first tender barge landing and removed with the last.

Barges would be loaded with aggregate material at a specified location on the West Coast of the U.S. mainland and transported to the island. Barges typically land at high tide in the early morning hours, and when wind and swells are relatively low. The entire barge landing operation involves the following events:

- Grading a pathway from the beach to existing roads;
- Constructing a temporary ramp and berm on the beach (only if necessary);
- Landing the barge;
- Offloading the barge;
- Removing the ramp and berm; and,
- Restoring the beach to its pre-barge landing condition.

The delivery process is described below:

Site Preparation: Site preparation would begin the day before the tender barge arrives. Depending on beach conditions at the time of offload, a temporary sand ramp may be needed for offload. The ramp would be configured using heavy equipment such as D-8 bulldozers that push, grade, and compact sand perpendicular to the shoreline. The ramp would require moving about 20 cubic yards of beach sand at Daytona Beach, or a smaller volume of sand at Coast Guard Beach because of its more gradual slope. Sand would be moved only above the high tide line. The amount of sand to be moved is a function of the beach slope specific to each landing site. Two tractors would be positioned at 100 feet on either side of the landing area before the tender barge arrives to provide stable anchorage for the tender barge. Two sets of chains and cables would be attached to the tractors for securing the tender barge.

At the proposed Coast Guard Beach landing site, a short (0.10 mile) unpaved road connecting Coast Guard Beach to the proposed asphalt batch plant site would require minor restoration. Restoration of the road would include surface re-grading and contouring using fill obtained from the adjacent Former Borrow Pit and supplemented with material from the Monroe Borrow Pit, if necessary, and upon approval and coordination with NBVC archaeology staff (Figure 2-1).

Barge Delivery: The primary shipping barge would drop anchors approximately 650 feet offshore at Daytona Beach or Coast Guard Beach (in about 24 feet (4 fathoms) of water at Coast Guard Beach or in about 45 feet (7.5 fathoms) of water at Daytona Beach. The tender barge would tie off to the primary shipping barge while the materials are being transferred. Materials would be offloaded to the tender barge using a conveyor belt or front loader. BMPs would be implemented to prevent spillage into the ocean during the transfer process. It would take approximately 2 hours to fully load the tender barge with material.

Barge Beach Landing: Once the tender barge is loaded with approximately 2,000 tons from the primary shipping barge, it would cast off and the tug boat would push it onto the beach. The tender barge may be tethered to each of the two D-8 bulldozers, positioned approximately 200 feet apart on the beach. Hydraulic winches on the tender barge would tighten the chains and secure the barge.

Once the tender barge is stabilized, matting would be laid over the temporary sand ramp, if necessary, to provide a stable surface and allow traction for vehicle access during loading and unloading. The bulldozers at the barge and ramp interface would ensure that the anchoring remains stable during unloading.

Offloading: Aggregate would be offloaded from the tender barge either by loaders that load dump trucks or by a conveyor belt directly from the barge to dump trucks. Truck and truck tractor/trailer support vehicles would be transported to NBVC SNI before the material is delivered using the Foss Maritime supply barge and Navy pier and removed from the island upon project completion.

Barge Removal: After all offloading operations are complete, crew members would remove the matting from the temporary ramp and the bulldozers would redistribute the sand above the high tide line and contour the beach to its previous topography. The anchoring cables and chains would be released and stored off site for future use. The tug would pull the barge away from the beach.

Biological Monitoring: During offloading, the area would be monitored for pinnipeds, western snowy plovers (*Charadrius alexandrinus nivosus*), and native fauna to ensure that they are not significantly affected by the material delivery. If marine mammals are occupying the beach during the planned landing, a biologist authorized by National Oceanic and Atmospheric

Administration/National Marine Fisheries Service (NOAA/NMFS) (hereafter referred to as "authorized biologist") would displace the animals out of harm's way according to procedures outlined in Section 101(a) (5) (D) of the Marine Mammal Protection Act (MMPA). Additional minimization measures are discussed in Section 2.5.

Health and Safety: Procedures would adhere to all USACE Environmental Manual-385-1-1 and Occupational Safety and Health Administration (OSHA) health and safety precautions throughout the material delivery operation to prevent accidents and ensure worker safety (see Section 3.6).

2.1.4 Temporary Asphalt Batch Plant

The proposed temporary asphalt batch plant would be sited off Beach Road, south of Coast Guard Beach (Figures 2-1 and 2-4). This area, which is connected to Coast Guard Beach by an unused dirt road, has previously been used for a batch plant, and can accommodate a stockpile of up to 13,000 tons of material. The batch plant can process up to 1,200 tons of material a day (or approximately 150 tons per hour). A temporary 150 horsepower (hp) diesel generator would supply electricity during batch plant processing. There would be no new trenching or excavation, but there would be minor surface grading to smooth the site.

2.1.5 Material and Equipment Staging

In addition to staging areas required for the road and airfield repairs discussed above, additional stockpile and storage areas would be needed and are shown on Figure 2-1. The asphalt batch plant would serve as the final point of rest and stockpile area for asphalt aggregate materials. Base and concrete aggregate materials would be transferred to and stored at the Contractor Yard adjacent to the airfield or the Airfield Laydown Area (shown on Figures 2-1 and 2-2), along with equipment and other materials that do not require processing at the asphalt batch plant. The Airfield Laydown Area, a flat dirt and gravel surface, was previously used for construction equipment and materials staging. Native soils for reuse in other projects would be stockpiled at the Monroe Borrow Pit. Additional equipment storage could occur in the Public Works Storage Yard (Figure 2-1).

2.2 REASONABLE RANGE OF ALTERNATIVES

Alternatives identified and carried through for analysis within this EA are designed to address the use of available resources and accommodate issues identified in previous studies. To be considered reasonable, an alternative will be consistent with the site criteria discussed below and will meet the purpose and need described in Section 1.4.

2.2.1 Barge Delivery and Beach Landing Site Selection Process

In a 1995 analysis, the Navy used a systematic site determination process to identify potential locations for barge beach landings and materials offloading (U.S. Navy 1996). The siting process focused on meeting operational requirements while simultaneously maximizing the success of barge landing and cargo transfer and minimizing impacts on the environment and military operations. Physical parameters necessary to support a barge delivery operation at NBVC SNI include ocean depth, beach characteristics, and road access. Operationally unsuitable areas eliminated from further consideration include the west and northwest coasts of NBVC SNI. With only slight modification, the 1995 Navy site selection process was applied to the current identification of barge landing locations for the proposed action.

An appropriate site for anchoring a large primary shipping barge, landing a tender barge, and offloading material onto the island was selected using the following criteria:

1. Physical conditions along the beach and in the surf zone that are necessary for anchoring and offloading material, including the following:

    a. Shelter from predominant wind and swells (Barge operations typically cannot be conducted when swells are higher than 4 feet.);

    b. Sufficient water depth at 650 feet offshore to accommodate a primary shipping barge, which has a draft of 20 feet when loaded with aggregate;

    c. Sufficient water depth nearshore to accommodate the tender barge, which has a draft of 10 feet when loaded with aggregate;

    d. Sufficient water depth 200 feet offshore from the high tide line to accommodate the tug boat, which requires about a 10-foot depth;

    e. Sandy entrance path from the small tender barge to the beach (The ocean bottom will be soft enough to avoid damaging the hull of the barge [or the tug boat] if grounded. Submerged reefs should be avoided. The entrance channel will be at least 150 feet wide to allow safe access and maneuvering of the tender barge and tug boat);

    f. A slightly sloped, open beach area that could accommodate two D-8 bulldozers acting as anchors for the chains, which would allow for safe operations of construction equipment and transfer of materials; and

g. Enough sand to create a sand ramp (if needed).

2. Proximity to existing access roads

3. An adequate staging area to allow for temporary storage of materials and for movement of vehicles, regardless of weather conditions

4. Avoidance of conflicts with Sea Range test, evaluation, and training activities

5. Barge landing that meets the following minimum environmental constraint factors:

   a. Use of a site should not result in adverse impacts on cultural or archaeological resources;

   b. The barge landing should avoid sensitive marine resources such as kelp and eelgrass beds; and

   c. Use of a site should not result in significant adverse impacts on biological resources, particularly sensitive plant species and vegetation communities, wildlife habitats, wetlands, and federally or state-listed threatened or endangered species.

The 1995 evaluation screened six potential barge delivery and landing sites using the criteria above; two sites passed the screen and were evaluated further: Daytona Beach and Coast Guard Beach (U.S. Navy 1996). Reasons for rejecting four of the alternative landing sites are discussed in Section 2.3.

The two candidate beach landing sites are Coast Guard Beach and Daytona Beach, located at the east and southeast ends of the island (Figures 1-2 and 2-1). At Coast Guard Beach, the large shipping barge would anchor about 650 feet offshore, where ocean depth is approximately 24 feet (4 fathoms). At Daytona Beach, the water 650 feet from shore is 45 feet (7.5 fathoms). To accommodate the tender barge which would extend to 200 feet offshore, the ocean depth at Coast Guard Beach and Daytona Beach is approximately 12 to 15 feet (2 to 2.5 fathoms). The ocean substrate at both sites is soft sandy sediments.

These two beaches offer the following advantages:

- Coast Guard and Daytona Beach are accessible by existing roads; and

- Coast Guard and Daytona Beach are located at the east and southeast sides of the island. Beaches nearest to the western end of the island experience the direct impact of storms that generally arrive from the northwest, and the majority of range operations, are conducted on the western end of NBVC SNI**.**

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR DETAILED ANALYSES

Use of Navy-Contracted Foss Maritime Barge and Daytona Pier: The existing supply pier at Daytona Beach was considered but not carried forward for detailed analysis based on the large number of barge trips that would be required to ship the required volume of material onto the island. Total project need is 195,000 tons of material. If the RORO and Daytona supply pier were used, over the course of the proposed 5-year project, 650 barge trips of 300 tons each would be required. Delivery of approximately 13,000 tons of aggregate using the RORO method at the existing supply pier would require at least 43 barge trips in addition to the 30 to 40 barge trips regularly scheduled each year to deliver other materials and supplies. It would take approximately 18 months to deliver only 13,000 tons of aggregate if the Foss Maritime barge were used. Two factors eliminated this alternative from further consideration: (1) unacceptable impacts to air quality associated with the required number of barge trips, and (2) unacceptable delays in completing the mission critical airfield repairs and road repairs.

Retrofit the Existing Pier: This alternative was not carried forward for detailed analysis because of the time and money that would be required to retrofit the existing pier to allow for larger incoming material barges. Additionally, aggregate material deliveries for the construction projects could conflict with the Navy's existing supply barge operations. The estimated cost of the pier retrofit would be in the millions of dollars, and the project could take years to complete. The delay in implementing mission critical repairs at the airfield would create unacceptable safety and operational hazards, potentially constraining mission-related activities and jeopardizing the military mission on NBVC SNI.

Beach Landings with a Large Primary Shipping Barge: This alternative was not carried forward for detailed analysis because it is not operationally feasible. A primary barge capable of carrying up to 13,000 tons of material on its deck could not make a beach landing because it requires deeper water. Landing on the beach would likely damage the hull and create a safety hazard.

Barge Anchored Offshore, Material Transferred Directly to Shore with a High-Line System: This alternative was not carried forward for detailed analysis as a result of extensive uncertainties about the operational parameters. No sites were found where this method of delivery could be used on NBVC SNI.

Barge Beach Landings at Cissy Cove: Cissy Cove is in the central portion of the northeast coastline of NBVC SNI (Figure 1-2). Although it is sheltered slightly by a point to the northwest, Cissy Cove is exposed to northwesterly winds and swells. No paved roads lead to this site, which is not accessible during the rainy season. The shallow and rocky ocean bottom makes ocean access to the cove hazardous

for large vessels. Previous attempts at landing barges at this location were deemed to be dangerous because of the risk of hull damage and potential sinking. In addition, the width of usable beach at this location is less than required for proposed barge operations. For these reasons, Cissy Cove does not meet the operational criteria for a barge landing site.

Barge Beach Landings at Tranquility (NAVFAC) Beach: Tranquility Beach is in a large cove that is not sheltered from northwesterly wind and swells. Ocean access is hazardous for large vessels because of the shallow and rocky ocean bottom. Direct access to the beach is by an unpaved road that is not useable during the rainy season. The width of usable beach at this location is also insufficient for the proposed barge operations. For these reasons, Tranquility Beach does not meet operational criteria for a barge landing.

Barge Beach Landings at Thousand Springs: Thousand Springs is at the northernmost portion of NBVC SNI and is exposed to northwesterly wind and swells (Figure 1-2). Pronounced rock formations on either side of the beach and a rocky ocean bottom limit the use of this cove for barge landings. The beach is too narrow to support the proposed materials transfer. Access is prohibited during the rainy season because no paved roads lead to this site. Even when the road is dry, the steep slope of the hill leading to the beach compromises the ease and safety of access by heavy trucks. For these reasons, Thousand Springs does not meet operational criteria for a barge landing site.

Barge Beach Landings at Tender Beach: Tender Beach, west of Thousand Springs, faces directly northwest into the general direction of wind and swells at NBVC SNI (Figure 1-2). The open beach is similar in size to Daytona Beach but has no paved access road or staging area. The absence of a paved road makes this site inaccessible during the rainy season. For these reasons, Tender Beach does not meet operational criteria for a barge landing site.

2.4 ALTERNATIVES FOR ANALYSIS

Four alternatives, including the No-Action Alternative, are analyzed in this EA (Table 2-4). For all action alternatives, the extent and methodology of roads repairs, road culvert repairs, airfield repairs, and airfield culvert repairs, as well as barge landing and offload methodology, would be the same, and is described in Section 2.1 above. Beach landings would occur from August 1 through November 30.

Table 2-4: Alternatives Selected for Evaluation

Alternative	Action
Alternative 1 (Proposed Action)	NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach
Alternative 2	NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only
Alternative 3	NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only
Alternative 4	No Action

2.4.1 Alternative 1 (Proposed Action): NBVC SNI Road and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach

Under Alternative 1, depending on environmental conditions at the time of aggregate shipment, the barge would anchor offshore of Coast Guard Beach or Daytona Beach. Decision factors for choosing the landing site include ocean swell and currents, beach conditions, and presence of nesting western snowy plovers within 500 feet of the landing area.

In the event that nesting snowy plovers are present at Coast Guard Beach or Daytona Beach, the alternate beach would be used for landing. Minimization measure WSP-2 (Section 2.5) directs that: "if plover nests are discovered within 500 feet of the action area, barge landings would be directed toward the alternate beach, assuming safe conditions allow for use of the alternate beach, and no nests occur within 500 feet of the landing area at the alternate site. In the unlikely event that nesting birds are present at both beaches, the beach that has nesting at the farthest distance from a safe offload site would be used and a Navy-approved and/or USFWS-approved biologist would monitor incubating behavior."

Daytona Beach is a wide sandy beach at the south end of NBVC SNI, the most sheltered part of the island (Figures 2-1 and 2-3). There are approximately 150 to 200 feet from Beach Road to the high tide line. Water depth and soft bottom conditions offshore support barge anchoring and beach landings. Beach Road is an all-weather, paved access road that terminates at Daytona pier. Adjacent to the pier, Daytona Beach provides a paved equipment staging area with electric light poles and adequate space for pier offloads. The staging area is enclosed by k-rail that would be temporarily moved to allow access to the beach landed barge. Daytona Beach offers suitable accommodations for barge landings because it has been used in this way previously.

Coast Guard Beach is a sandy beach at the east side of NBVC SNI, accessible by Beach Road (Figures 2-1 and 2-4). The Navy has used this site successfully in the past for barge deliveries. On Coast Guard Beach, there are approximately 300 feet from the access road to the high tide line in a relatively sheltered part of the island. Coast Guard Beach has a gentler slope than Daytona Beach. The nearshore bottom is soft, and water depths of 2 to 5 feet are suitable to beach landings. Existing moorings in the area will be considered for use as anchorage points for the primary shipping barge. A short (0.10 mile) unpaved road that connects Coast Guard Beach to the proposed asphalt batch plant site would require regrading to facilitate materials transport (Figure 2-4). To facilitate regrading the access road, approximately 400 cubic yards of dirt would be used from the Former Borrow Pit and or from the Monroe Borrow Pit, if necessary (Figure 2-4). Regrading would provide access widths that range from 30 to 12.5 feet wide and a smoother surface for hauling (Table 2-5).

Table 2-5: Coast Guard Beach Access Road Needs

Project Components	Area (acres)	Material Required*	Area of Disturbance	
			Long-Term	Short-Term
Former Borrow Pit Area	1.10	Native	0	1.10
Grading Earthen Road	0.38	Native	0.05	0.33 acres

*Only native material would be used.

Loaders would transfer the aggregate from the tender barge to dump trucks positioned on the beach at either Coast Guard, or Daytona Beach. Based on previous beach offload operations at NBVC SNI, the proposed tender barge would be offloaded at approximately 1,000 tons per hour. Each tender barge loading, landing, and offload sequence would take approximately four hours. At this rate, two landings per day could be completed within an 8 to 10 hour period. Loaded dump trucks would transfer the aggregate from either Daytona Beach or Coast Guard Beach to the asphalt batch plant staging area and the Airfield Laydown Area. One shipment of 13,000 tons of aggregate would take approximately eight beach landings over five days to offload. Daytona Beach is approximately 2.0 miles (4.0 miles roundtrip) from the proposed temporary asphalt batch plant site, and 6.0 miles (12.0 miles roundtrip) from the airfield. Coast Guard Beach is 0.105 mile (0.21 mile roundtrip) from the proposed temporary asphalt batch plant and 4.0 (8.0 miles roundtrip) from the airfield (Figures 1-2 and 2-1).

2.4.2 Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only

Alternative 2 consists of NBVC SNI roads and airfield repairs as described under the Proposed Action, with the only difference being that barge beach landings would occur only at Daytona Beach. Alternative 2 would use Daytona Beach only for aggregate material delivery, and as described in Section 2.1.3 and Section 2.4.1. Table 2-6 summarizes beach landings and equipment mileage using only Daytona Beach.

Table 2-6: Alternative 2 Summary of Material Delivery

Project	Number of Barge Deliveries	Beach Landings	Year	Volume (tons)	Dump Truck Roundtrips*	Destination**	Roundtrip Miles
Roads Repair	3	8 over 5 days x 3	1	13,000 x 2	565 x 2	Asphalt Batch Plant	4,520
			2	8,100 x 1	352 x 1		1,408
			3	9,400 x 1	409 x 1		1,636
Airfield repair	12	8 over 5 days x 12	2	4,900 x 1	213 x 1	Asphalt Batch Plant	852
				13,000 x 2	565 x 2	Airfield	13,560
			3	3,600 x 1	156 x 1	Asphalt Batch Plant	624
				13,000 x 1	565 x 1	Airfield	6,780
				8,500 x 1	369 x 1		4,428
				4,500 x 1	196 x 1	Asphalt Batch Plant	784
				13,000 x 1	565 x 1	Airfield	6,780
			4	13,000 x 2	565 x 2	Airfield	13,560
				13,000 x 1	565 x 1	Asphalt Batch Plant	2,260
			5	13,000 x 1	565 x 1	Airfield	6,780
				13,000 x 1	565 x 1	Asphalt Batch Plant	2,260
				13,000 x 1	565 x 1	Airfield	6,780
		120 landings	**195,000 tons**		**8,475 roundtrips**		**73,012 miles**

* Calculations assume 565 Roundtrips are required to offload 13,000 tons. Smaller amounts represent offloads shared by airfield and road projects, as described in Table 2-3 above.

** Asphalt batch plant site is 4.0 miles roundtrip from Daytona Beach, and the airfield area is 12.0 miles roundtrip.

2.4.3 Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only

Alternative 3 consists of NBVC SNI roads and airfield repairs as described under the Proposed Action, with the only difference being that barge beach landings would occur only at Coast Guard Beach. Alternative 3 would use Coast Guard Beach only, for delivery of the aggregate, and as described in Section 2.1.3 and Section 2.4.1. Table 2-7 summarizes beach landings and equipment mileage by using Coast Guard Beach.

Table 2-7: Alternative 3 Summary of Material Delivery

Project	Number of Barge Deliveries	Beach Landings	Year	Volume (tons)	Dump Truck Roundtrips*	Destination**	Roundtrip Miles
Roads Repair	3	8 over 5 days x 3	1	13,000 x 2	565 x 2	Asphalt Batch Plant	237
			2	8,100 x 1	352 x 1		74
			3	9,400 x 1	409 x 1		86
Airfield repair	12	8 over 5 days x 12	2	4,900 x 1	213 x 1	Asphalt Batch Plant	45
				13,000 x 2	565 x 2	Airfield	9,040
			3	3,600 x 1	156 x 1	Asphalt Batch Plant	33
				13,000 x 1	565 x 1	Airfield	4,520
				8,500 x 1	369 x 1		1,476
				4,500 x 1	196 x 1	Asphalt Batch Plant	41
				13,000 x 1	565 x 1	Airfield	4,520
			4	13,000 x 2	565 x 2	Airfield	9,040
				13,000 x 1	565 x 1	Asphalt Batch Plant	119
			5	13,000 x 1	565 x 1	Airfield	4,520
				13,000 x 1	565 x 1	Asphalt Batch Plant	119
				13,000 x 1	565 x 1	Airfield	4,520
		120 landings	**195,000 tons**		**8,475 roundtrips**		**38,390 miles**

* Calculations assume 565 Roundtrips are required to offload 13,000 tons. Smaller amounts represent offloads shared by airfield and road projects, as described in Table 2-3 above.

** Asphalt batch plant site is 0.21 miles roundtrip from Coast Guard Beach, and the airfield area is 8.0 miles roundtrip.

2.4.4 Alternative 4: The No-Action Alternative

Under the No-Action Alternative, the roads, road culverts, airfield, and airfield culverts, on NBVC SNI would not be repaired. No barges would land on the beach. No temporary batch plant would be constructed.

2.5 MINIMIZATION MEASURES

The following minimization measures will be implemented for Alternatives 1 through 3 to avoid or minimize potential adverse impacts on air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste management, human health and safety, noise, and water resources.

2.5.1 Air Quality

AIR-1 The following measures will be implemented to minimize fugitive dust emissions:

- All active construction areas including unpaved access roads and staging areas will be watered down with non-potable water on a regular basis to ensure that visible dust clouds do not reach 100 feet in length. Special attention to watering will occur during periods of high winds.
- All trucks that haul soil, aggregate, and other loose materials will maintain at least 2 feet of freeboard.
- Access points to the asphalt batch plant and stockpile areas will be stabilized to reduce sediment tracking onto adjacent streets.

AIR-2 The following measures will be implemented to minimize emissions of ozone recursors and greenhouse gases (GHGs):

- Equipment idling time will be minimized.
- Equipment engines will be maintained in good condition and in proper tune as per manufacturers' specifications.

AIR-3 The main and auxiliary engine(s) for the tug for the barge will use either marine gas oil or marine diesel oil with sulfur content at or below one percent in compliance with the California Air Resource Board's pending changes to the Oceangoing Vessel Clean Fuel Regulations.

2.5.2 Biological Resources

The following titles for biologists are used in the Biological Resources minimization measures and defined as:

Navy biologist: NBVC Environmental Division and/or Naval Facilities Engineering Command (NAVFAC) Southwest biologists.

Project biologist: A biologist contracted for implementation of the Biological Resources minimization measures. The project biologist may or may not be authorized by the USFWS or NOAA/NMFS under the authority of the Endangered Species Act (ESA) and MMPA, as further described below.

Qualified biologist: (1) A biologist authorized by USFWS, either under the authority of a Biological Opinion, or permitted under Section 10A-1A of the ESA; and/or (2) A biologist authorized by NOAA/NMFS under Section 109(a)(5)(D) of the MMPA.

Navy-approved: A biologist specifically trained by the Navy in marine mammal, Western Snowy Plover, or Island Night Lizard monitoring and survey techniques.

General Biological Resource Measures

BIO-1 All construction activity will take place within the Proposed Action footprint. Contractors will be provided with maps showing the centerlines and limits of surveys that were used for the environmental analyses in the final EA and informed that construction activity shall be confined to those corridors. Maps will include the locations of sensitive species and habitats, and USACE jurisdictional waters.

BIO-2 Before construction begins, project footprints will be clearly marked with flagging or other suitable material, to avoid unintended impacts to sensitive areas and minimize impacts to vegetation and island night lizard habitat. Flagging will be removed promptly when the project is complete.

BIO-3 Contractors will be responsible for compensation for direct impacts to biological resources that occur as a direct result of construction outside of the project footprints at a rate set by the USFWS or the Navy.

BIO-4 One or more USFWS-approved biologists will conduct a training session for all project personnel prior to the onset of any ground-disturbing activities within the Proposed Action area. At a minimum, this training must include a description of the western snowy plover and island night lizard and their habitats, the general provisions of the ESA, the penalties associated with violating the provisions of the ESA, and the specific measures listed herein, to avoid and (or) minimize the adverse effects to these species. Additionally, all construction personnel will attend a mandatory environmental briefing at the start of the work day for work to be

performed in sensitive habitats, and personnel attendance will be documented. For work in non-sensitive habitats, environmental briefings will occur weekly or as needed. Federal regulations regarding protected biological species will be emphasized, along with the importance of honoring environmental closure areas. The Environmental briefing would be given by NAVFAC Southwest and NBVC personnel or the project biologist before work begins. If the training is given by the project biologist, then NAVFAC Southwest or NBVC staff would brief the project biologist, and the biologist would brief the crew on the resources and avoidance and compensation measures involved in the project. Environmental training will include a description of sensitive species and habitats potentially on or near the project site, and the surrounding habitat; details on each species' habitat requirements; the protective measures to be implemented for each species; and the responsibilities of the project biologist and of those on site to protect biological resources. The training will describe the requirements and boundaries of the project, the importance of complying with compensation measures, and the requirements for reporting non-compliance and if applicable, any resolution methods employed. Training will provide information on and legal consequences of improper disposal of trash, trespassing, and harassing or harming designated sensitive habitat areas and species in or outside of the project footprint.

BIO-5 Potential perches and island night lizard cover (stacks of wood, pallets, and piles of debris) will be removed from the footprint of the Proposed Action when feasible. Removal of these habitat elements would minimize the potential construction-related effects on sensitive species. The lack of cover would reduce sensitive species' attraction to the footprint of the Proposed Action, and the lack of perch opportunities would reduce potential predation on sensitive species.

BIO-6 Construction equipment will be inspected for animals before mobilization. Of specific concern is injury to the San Nicolas Island fox and pinnipeds that may rest around equipment.

BIO-7 For culvert repairs that are scheduled to occur during the breeding and pupping period for the San Nicolas Island fox (March through August), exclusion fencing will be installed in early February, as deemed necessary by the Navy biologist, to deter any foxes from establishing dens in culverts to be demolished. The exclusion fencing will require maintenance after storm events to remove accumulated debris and ensure they are intact.

BIO-8 At the beginning of project activities and quarterly for two years after project completion, the project footprints (including all areas of road repairs, barge landing, asphalt production, and materials staging areas) will be monitored for introduction and growth of non-native plant species by a biologist skilled at plant identification and knowledgeable of NBVC SNI flora, weed species, and the California Invasive Plant Inventory. Non-native invasive plant species observed in and near the project site before construction will be noted by the project biologist as baseline conditions. Weed species new to the project area, whether they are new to NBVC SNI or new to the specific area of the project site, will be reported to NAVFAC Southwest and NBVC for control. The NBVC biologist will determine the priority of non-native species to be removed.

- Non-natives will be manually removed, or treated with spot applications of herbicide approved for use by the Navy biologist. Herbicide will be sprayed during calm weather to avoid overspray and damage to native vegetation.

BIO-9 Trash will be disposed of properly, and work sites kept trash-free to reduce animal attraction. Trash cans would have secure lids which close tightly.

BIO-10 To avoid significant impacts to marine mammals, beach landings would be limited to August 1 through November 30, when pinnipeds are present at Daytona and Coast Guard Beaches only sporadically, and in lower numbers than other times of the year. The NBVC Point Mugu Environmental Division biologist, or qualified biologist (as defined above) will conduct displacement procedures in accordance with Section 109(a)(5)(D) of the MMPA. During barge landings/offloadings, the Navy biologist or qualified biologist will displace pinnipeds from the landing site as necessary for the safety of the marine mammals and construction workers. Pinnipeds will only be displaced if they are within the heavy equipment work zone, which extends 200 feet on both sides of the landing site. Temporary barriers will be used, when feasible, to keep the displaced pinnipeds from re-entering the area. This effort will greatly minimize the potential for pinnipeds to be affected by project activities.

The Navy or qualified biologist will monitor pinniped reactions to beach barge landings to ensure their protection and project compliance with the MMPA.

BIO-11 To the greatest extent feasible, vegetation clearing along roads will be scheduled to avoid the nesting season for birds, which occurs between December 15 and June 30. If avoiding the nesting season is not practicable, then the following measures will be employed:

- Preconstruction surveys will be conducted for active nests within 50 feet (15 meters) of the proposed construction corridor.
- The impact of new construction activity on nesting birds depends on whether the birds can see the activity and their tolerance for visual movement and construction-related noise. For active nests found within 50 feet, additional analysis would be conducted to determine if active nests are shielded from the activity by site topography, or other screening factors. Any nests found within 50 feet will be monitored to ensure the bird remains to incubate and if required, artificial screening would be placed to reduce disturbance. If this is found by the project and/or Navy biologists to be insufficient, and activities may result in "take" under the Migratory Bird Treaty Act (MBTA) due to abandonment, the USFWS migratory bird office will be contacted to determine the appropriate course of action.

BIO-12 As needed, the project biologist will oversee construction activities to ensure compliance with sensitive biological resource avoidance and minimization measures, including implementation of specific measures for protection of the island night lizards, western snowy plovers, and marine mammals. The project biologist will: (1) be familiar with the federally listed species and associated habitats that require survey or monitoring; (2) have a bachelor's degree with an emphasis in ecology, wildlife biology, or related science; (3) have previous experience with applying the terms and conditions of a Biological Opinion; (4) ensure impacts on sensitive resources are minimized; (5) educate workers about sensitive habitats and how to implement

avoidance and minimization measures, and (6) attend road repair-related meetings as needed. A qualified biologist (authorized by USFWS, either under the authority of NBVC SNI's Biological Opinion to conduct the activity, or permitted under Section 10[a][1][A] of the ESA, specific to the species and type of activity required; or authorized by NOAA/NMFS under Section 109(a)(5)(D) of the MMPA) may relocate lizards or marine mammals occupying work zones according to USFWS and MMPA regulations and guidelines.

BIO-13 The project biologist will monitor construction as needed to ensure compliance with compensation measures and will keep the project engineer, NAVFAC Southwest, and NBVC informed about construction that may threaten significant biological resources. The project biologist will record activities daily and provide electronic versions of biological monitoring reports at least twice monthly to NAVFAC Southwest and NBVC.

BIO-14 The project biologist will be present on site during vegetation removal, during work in sensitive habitats, and during activities that may threaten significant biological resources, as needed, to ensure that no sensitive native wildlife wander onto areas of active construction. The biologist, if authorized by USFWS, will relocate any island night lizards detected during construction to move them out of harm's way. If the project biologist is not authorized to handle lizards, work will cease until an authorized individual can move the lizards.

BIO-15 To control the spread of weeds, all equipment or vehicles brought to NBVC SNI specifically for construction of the Proposed Action will be power washed before they enter NBVC SNI. The discharge resulting from power washing must comply with Construction and Industrial General Permit requirements, and BMPs such as gravel bag berms must be used to contain and collect the water. While wheeled vehicles are washed, the front wheels would be turned lock-to-lock to allow for exposure of surfaces that may hold weed seeds. If there is not a power washer at the barge loading sites, vehicles will be washed before they enter the barge loading sites. The Navy will oversee contractor compliance with this measure.

BIO-16 All gravel and fill materials brought to the island will be certified "weed free."

BIO-17 To control the introduction and spread of invasive fauna to NBVC SNI, the contractor will comply with measures stated in the NBVC SNI Biosecurity Plan, at the discretion of the Navy.

BIO-18 Where feasible, areas of ground disturbance will be re-contoured to match the surrounding landscape.

Vegetation Community and Rare Plant Species-Specific Measures

VEG-1 Areas of road and airfield repair will be surveyed for the presence of sensitive plant species and vernal pools. Rare plants will be flagged and avoided where feasible. Vernal pools will be avoided.

VEG-2 Areas of vegetative disturbance from construction will be monitored for regeneration of native vegetation. If the Navy biologist determines that adequate recruitment of native vegetation has not occurred 1 year from the end of project disturbance, the contractor (under Navy supervision) will re-vegetate with seed collected from native species on the island or install plants propagated from native plant material originating on the island.

Island Night Lizard-Specific Measures

The following island night lizard-specific measures are in accordance with the project Biological Assessment (BA) (Tetra Tech 2011a) and the terms and conditions of the project Biological Opinion (BO) (USFWS 8-8-12-F-12) in Appendix B.

INL-1 No more than 15 days before the onset of ground disturbance, one or more USFWS-approved biologists must survey the project area for island night lizards. The biologist(s) must be on site daily until ground disturbance within island night lizard habitat is complete. Surveys would follow the protocol described in the *Biological Opinion for Activities on San Nicolas Island* (USFWS 2001).

INL-2 The limits of all construction areas or areas where disturbance of lizard habitat might occur would be delineated by the project biologist in conjunction with the project engineer with bright flagging or fencing, where operationally practicable, to minimize the amount of habitat damage and loss. Equipment, personnel, and vegetation removal would not operate beyond the limits defined by the flagging or fencing. Materials used to delineate the boundaries of the construction area would be removed immediately after the project is complete.

INL-3 When project activities occur in moderate to high density island night lizard habitat, a qualified biologist would be on site to monitor construction and to ensure compliance with sensitive biological resource avoidance and minimization measures, including implementation of specific measures for the protection of island night lizards.

INL-4 When feasible, island night lizards inhabiting structures or vegetation to be removed, or along roadsides, culverts, or at materials staging areas, would be captured and relocated by a qualified biologist authorized by USFWS to nearby suitable habitat. Only authorized persons under the project BO (8-8-12-F-12, Appendix B), would handle night lizards. Night lizards may also be handled by any other Section 10A-1A permitted individuals. When feasible, release sites will be re-visited to determine occupancy of re-located individuals. Other biological monitors for the project would or can fulfill other protective measures other than handling night lizards. Notification, record-keeping, reporting and post-relocation monitoring of lizard relocations would follow guidelines provided under the programmatic BO for Activities on San Nicolas Island (1-8-01-F-14) (USFWS 2001) and will be included in the programmatic BO annual report.

INL-5 Staging will occur only in designated staging areas. Stacking construction material for staging will be discouraged. Where material will be stacked, it will be kept off the ground on pallets or similar supports. Stored material will be checked for island night lizard activity before it is moved.

INL-6 To the greatest extent feasible, vegetation clearing in areas with a higher probability of island night lizard occupation will be avoided from September 1 to October 31 to avoid disrupting adults with recently born young. Where the Navy biologist deems appropriate, hand clearing of vegetation may occur to increase potential of capturing lizards in the project site and to decrease mortality of lizards.

Western Snowy Plover-Specific Measures

WSP-1 All unnecessary structures adjacent the barge landing sites or asphalt batch plant that could provide predator perches will be removed or rendered unsuitable for that purpose, as feasible.

WSP-2 During the plover nesting season, a Navy-approved or qualified biologist will survey beach areas for nesting plovers before barge landings are scheduled. Beaches will also be surveyed for plovers the morning of landing; this applies to nesting and non-nesting season.

- During nesting season, if plovers are present within 1,000 feet of the action area, a Navy-approved or qualified biologist will remain on site during barge landing and unloading activities, to monitor their movement and behavior.
- If plover nests are discovered within 500 feet of the action area, barge landings will be directed toward the alternate beach, assuming safe conditions allow for use of the alternate beach, and no nests occur within 500 feet of the landing area at the alternate site. In the unlikely event that nesting birds are present at both beaches, the beach that has nesting at the farthest distance from a safe offload site will be used and a Navy-approved or qualified biologist will monitor incubating behavior.
- If foraging or roosting plovers occur within 100 feet of the action area, unloading and heavy equipment operations may be suspended at the decision of the Navy-approved or qualified biologist, until the plovers leave the 100 foot buffer. The biologist will remain on site during project activities, as long as deemed necessary.

Essential Fish Habitat-Specific Measures

EFH-1 Barge operators will use the most recent information about the boundaries of the kelp canopy and eelgrass beds, as provided by the Navy, to determine the clearest path of travel for avoidance. Vessel operators will be instructed to maintain a safety buffer around these areas of Essential Fish Habitat (EFH) when possible.

EFH-2 In compliance with the Environmental Protection Agency's Vessel General Permit and U.S. Coast Guard regulations, no oil, fuel or chemicals will be discharged to waters of the state. Vessels will be equipped with spill kits and cleanup materials, and operators will be trained in responding to an accidental release of oil, fuel, or chemicals. Offloading equipment will be checked for leaks at the start of beach grading and aggregate offloading each day.

EFH-3 Measures will be taken to prevent spillage of aggregate during the barge to barge transfer process. Measures may include but are not limited to the use of a tarp or other barrier between the two barges to capture accidental spillage.

EFH-4 Beach grading and aggregate offloading will not occur during rain storms.

EFH-5 All trash will be consolidated and shipped to the mainland for disposal or recycling.

EFH-6 During project implementation, the Navy will regularly monitor offloading to ensure that the Proposed Action occurs as described in this EA. The Navy will contact NMFS if there are unanticipated impacts or conservation measures cannot be implemented as proposed.

2.5.3 Cultural Resources

CULT-1 All construction personnel will attend a mandatory environmental briefing at the start of the day for work to be performed near archaeological sites, and personnel attendance will be documented. For work in areas where archaeological sites are not nearby, environmental briefings will occur weekly. Federal regulations regarding protected cultural sites will be emphasized, along with the importance of honoring environmental and cultural closure areas. The environmental briefing will be given by either NAVFAC Southwest/NBVC personnel or the project archaeologist before work begins. If the training is given by the project archaeologist, then NAVFAC Southwest or NBVC staff will brief the project archaeologist, who will then brief the crew on the resources and avoidance and compensation measures involved in the project. Environmental training will include a description of archaeological sites potentially on or near the project site. Environmental training will also include a description of the protective measures to be implemented for cultural resources; and the responsibilities of the project archaeologist and of those on site to protect cultural resources. The training will describe the requirements and boundaries of the project, the importance of complying with minimization measures, and the requirements for reporting non-compliance and, if applicable, any resolution methods employed. Training will provide information on the legal consequences of improper disposal of trash, trespassing in or outside of the project footprint, as well as the consequences of disturbing designated sensitive cultural areas.

CULT-2 Excavation will be monitored by a Navy archaeologist or other qualified project archaeologist.

CULT-3 Before the project begins, the Navy archaeologist or other qualified archaeologist will flag areas of sensitive cultural resources. Project activities including vehicular parking and travel will avoid flagged areas.

CULT-4 Road repairs will avoid sensitive cultural resources. If archaeological materials are discovered during construction, all work will be suspended and the Navy's cultural resource staff notified. If subsequent avoidance is not possible, the Navy will reinitiate consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA).

CULT-5 Staging materials and equipment will be confined to designated staging areas to avoid archaeological resources.

2.5.4 Geology and Soils, Hazardous Materials and Hazardous Waste Management, and Water Resources

SWPPP-1 Alternatives 1-3 will gain coverage under the General Construction Permit 2009-0009DWQ. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared that will include, but will not be limited to, the following measures:

- Clearing and grading of native vegetation will be kept to the absolute minimum.

- Grading will be phased and scheduled to reduce the amount and duration of soil exposed to erosion and to avoid the rainy season when feasible (October 1 to April 30). Clearing and grubbing or grading will not be conducted during rain events.
- All equipment and materials will be staged and stockpiled in designated staging or stockpile areas that will be delineated with bright colored flagging or fencing (shown on Figure 2-1). Designated staging or stockpile areas will be located at least 100 feet from drainages.
- Stockpiles of material will have a fiber roll barrier or other erosion control measure placed around its perimeter to capture sediment during storms. Stockpiles will not be located in or adjacent to (i.e., connected to) natural drainage pathways.
- Certified weed-free fiber rolls or straw wattles will be used along slopes where construction occurs.
- Check dams will be used to reduce runoff velocities where necessary.
- Where necessary, sedimentation ponds or basins for runoff retention will be constructed and will include additional filters for drainage (gravel bags, silt fencing, or filter fabric).
- If there is temporary ponding, the area will be dewatered in compliance with the Construction Dewatering Permit, General National Pollutant Discharge Elimination System (NPDES) Permit No. CAG994004.
- Erosion-control measures will be examined and maintained on a daily basis starting within 24 hours of a predicted rain event, during rain events, and 24 hours after rain events. Damaged or worn silt fences, wattles, and gravel bags will be replaced before rain events. Erosion-control measures will also be examined and maintained regularly during the dry season.
- All equipment fueling and maintenance will either be conducted on existing paved areas or within the designated staging areas. Vehicles and equipment will be checked daily for leaks. Staged vehicles and equipment will be stored with drip-pans in place.
- Vehicles and equipment will be cleaned in designated wash areas, as identified by NBVC Environmental Division staff. If it becomes necessary to clean vehicles on site, they will be rinsed with water in designated bermed and lined areas to prevent contact of rinse water with drainages. Soaps or detergents will not be used. Rinsate will be allowed to evaporate and the solid residue disposed of properly, based on its chemical characteristics.
- Proper concrete washout design and containment will be used.
- Hazardous materials, including materials used in the asphalt batch plant, will be stored, used, and disposed of in accordance with Navy, state, and federal guidelines pertaining to handling, storage, transport, disposal, and use of such materials.
- An emergency response plan will be prepared for the project to contain and clean up accidental spills safely and quickly with minimal impact on the environment.

PALEO-1 All construction personnel will attend a mandatory environmental briefing on how to recognize paleontological resources, and personnel attendance will be documented. If potential significant paleontological resources are discovered, work will stop in that area and NBVC environmental staff will be contacted to determine the appropriate course of action.

2.5.5 Human Health and Safety

SAF-1 During construction, a paved evacuation route for island personnel to access the airfield or the pier will be left open at all times.

2.5.6 Noise

NOISE-1 Road repairs within Nicktown will be limited to weekdays from 8 a.m. to 5 p.m.

2.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

In accordance with NEPA, the Navy performed a focused analysis of the resource areas potentially affected by implementation of the four alternatives: air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste management, human health and safety, land use and coastal zone management, noise, recreation, services and utilities, transportation, and water resources.

As detailed in Table 2-8, the Proposed Action, Alternative 2, Alternative 3, and the No-Action alternative would have no significant impact on any resource area. However, implementation of the No-Action alternative would not meet the purpose and need for the Proposed Action. Implementation of the Proposed Action and Alternatives 2 and 3 would have a net beneficial impact to the following resource areas: geology and soils from reduced erosion; transportation from improved conditions on roads and the runway, which will increase safe transport of personnel, ordnance, and operations; and water resources from reduced sediment loads to drainages and the Pacific Ocean.

Table 2-8: Summary of Environmental Consequences

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Air Quality	No Significant Impact Air emissions would be well below NAAQS General Conformity standards.	No Significant Impact Air emissions would be well below NAAQS General Conformity standards.	No Significant Impact Air emissions would be well below NAAQS General Conformity standards.	No Significant Impact There would be no air emissions.
Biological Resources	No Significant Impact Minimization measures detailed in Section 2.5.2 reduce the following impacts to less than significant levels. • No federally listed plant species are known to occur on NBVC SNI. Minor and insignificant impacts to vegetation would occur along road and airfield shoulders. The majority of impacts would occur at the airfield, in grassland dominated by non-native species. • Impacts to the western snowy plover would be minimized or avoided by restricting barge landing and offloading to begin at the end of nesting season (August 1), when nests would be few and unlikely.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Biological Resources (Cont.)	• Some harassment and mortality of island night lizards could occur from relocation efforts and construction activities. However, long-term beneficial impacts would occur from the Proposed Action, by improving habitat quality in drainages. Impacts to lizards would be reduced through the project design, which would minimize road shoulder work conducted in high quality lizard habitat (e.g. Owen Road area) and limit project staging to designated staging areas. Additionally, impacts would be spread over a number of years, with time for recovery of affected populations between impact events.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Biological Resources (Cont.)	• Nesting birds are not likely to occur directly adjacent to roadsides, and vegetation clearing around culverts would be conducted outside the breeding season when feasible. When this is not practical, pre-construction surveys would be conducted for active nests within 100 feet of the project area. • Short-term impacts could occur to the San Nicolas Island Fox, from construction noise and activity, but would not be significant. Long-term impacts could occur from potential collision mortalities due to construction traffic and potentially increased speeds on the improved roads. The foxes' mobility and the Navy's measures to avoid take of the fox would reduce these impacts to less than significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Biological Resources (Cont.)	• Impacts to marine mammals would be short-term and insignificant. The timing of the Proposed Action is outside the breeding and pupping season, when fewer animals are hauled out on Coast Guard and Daytona beaches. A few individual pinnipeds could occur outside the breeding season and need to be displaced from the project area. • Impacts to marine flora would be temporary, reversible and not significant. Vessels would use the clearest path of travel. • Short-term impacts to benthic invertebrates would occur from disturbance of the intertidal zone from landing barges on the beach, and to the sandy beach from grading a pathway. Suspended sediment in the water column would be temporary, limited to periods of anchoring, landing, and offloading.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Biological Resources (Cont.)	• Fish may disperse from the immediate project area, but would likely return once offloading is complete. Suspended sediments would be temporary, and would likely be similar to conditions under heavy surf or storm events. • The Proposed Action would have less than significant short-term and long-term direct impacts to WOUS, and beneficial long-term indirect impacts. Beneficial impacts would accrue through reduced erosion and sediment delivery to WOUS. Short-term direct impacts would be reduced to less than significant by implementation of standard construction erosion control practices.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach); the impact would not be significant.	No Significant Impact Environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach); the impact would not be significant.	No Significant Impact There would be no change in the current environmental setting.
Cultural Resources	No Significant Impact Cultural resource impacts would be avoided through archaeological monitoring, flagging and avoidance of cultural resources, and issuance of stop-work orders in the event that cultural resources are discovered during construction.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no potential impacts to cultural resources.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Geology and Soils	No Significant Impact The Proposed Action with implementation of standard BMPs for erosion control would result in only minor amounts of erosion, and only in the short-term. Planned culvert repairs would result in minimizing undercutting and erosion of soil at several locations for the long-term, resulting in a long-term beneficial impact to geology and soils.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.
Hazardous Materials and Hazardous Waste Management	No Significant Impact By implementing the Navy's standard BMPs for management of hazardous materials, there would be no significant impacts on the use of hazardous materials or the handling of hazardous waste on NBVC SNI.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no potential impacts to hazardous materials and hazardous waste management.
Human Health and Safety	No Significant Impact Adherence to the Navy's Safety and Health Requirements Manual, the APP, and AHA would help ensure that healthy and safe conditions would occur.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no potential impacts to human health and safety.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Land Use and Coastal Zone Management	No Significant Impact The proposed airfield repairs are identified as mission critical in the AOP; proposed road repairs are identified as a mission support project. Closure of the runways to facilitate repairs is expected to last no longer than two weeks and this short-term closure is not expected to significantly affect the mission of NBVC SNI. With implementation of the minimization measures listed in Chapter 2, the Proposed Action would be in compliance with the Coastal Zone Management Act and would not result in a significant impact to coastal zone management on NBVC SNI.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.
Noise	No Significant Impact Construction noise associated with road repairs in the Nicktown area could, in the short-term, affect residents within Nicktown. Limitations on construction occurring only between 8 a.m. to 5 p.m. weekdays in Nicktown, would reduce these impacts to less than significant. There would be no long-term impacts from noise.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Recreation	No Significant Impact Recreational use, including fishing by Base personnel at Daytona Beach and Coast Guard Beach, would be interrupted during barge beach landings, but for a very short duration (four times between August and November during a 5-year period). NBVC SNI has no public access and is solely owned and managed by the U.S. Navy. Therefore, no significant impacts associated with access to the shore (recreational or otherwise) or land use incompatibility would occur.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current recreation setting.
Services and Utilities	No Significant Impact The Proposed Action would have a short-term, less than significant impact to services and utilities on NBVC SNI. Only three potable water barge shipments would be required over the course of the 5-year project. A maximum of 25 construction personnel would be on the island at any one time, and there would be no addition of permanent employees to the workforce on NBVC SNI.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current services and utilities setting.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Transportation	No Significant Impact During roads and airfield repairs, impacts to transportation would be short-term and less than significant: one lane would be kept open at all times, on major roads of NBVC SNI. An ordnance route would always remain open. The airfield runway may need to be closed for approximately 2 weeks during repairs. The shipping barge would use standard Vessel Traffic Separation Scheme shipping lanes. Anchorage of the shipping barge at Daytona Beach would not preclude the use of the pier by the supply barge regularly used by the Navy. Overall, implementation of the Proposed Action would result in a long-term beneficial impact to transportation by increasing safe road and runway conditions, and supporting the viability and continued use of the runway.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current transportation setting.

Table 2-8: Summary of Environmental Consequences (Cont.)

Resource Area	Proposed Action: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach and Coast Guard Beach	Alternative 2: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Daytona Beach Only	Alternative 3: NBVC SNI Roads and Airfield Repairs with Barge Beach Landings at Coast Guard Beach Only	No-Action Alternative
Water Resources	No Significant Impact Disturbance of the beaches during barge beach landings would increase turbidity of the ocean in the vicinity of the landing in the short-term: over the course of a few days, up to four times per year, for a period of five years. Ground disturbance caused by the airfield, roads, and culvert repairs, has the potential for localized erosion during construction. However, implementation of standard erosion control measures and a SWPPP, in compliance with the LARWQCB's NPDES permit requirements for discharges associated with construction activities, would greatly reduce the potential for erosion to occur. In addition, the culvert repairs would have a significant long-term benefit to ocean water quality by reducing or eliminating headcutting of existing drainage ditches and associated erosion and sedimentation of ocean waters.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact Potential impacts would be the same as under the Proposed Action.	No Significant Impact There would be no change in the current environmental setting.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Under NEPA, resources may be either directly or indirectly affected by a project. Impacts may occur as a result of construction of the project, and/or as a result of operation after construction is complete. Direct and indirect impacts may be short-term (temporary and reversible) in duration, or long-term. Direct impacts are those which are caused by the action and occur at the same time and place. Indirect impacts are those which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (CEQ Section 1508.8). Impacts are described below as short- or long-term in duration; all impacts described in this document are direct, except for those instances where indirect impacts are specifically called out as such.

3.1 AIR QUALITY

3.1.1 Setting

The Clean Air Act (CAA) forms the basis for the national air pollution control effort. Under the CAA, attainment and maintenance of National Ambient Air Quality Standards (NAAQS) is required for major air pollutants, called criteria pollutants. The current NAAQS for criteria pollutants are listed in Table 3-1.

The California Clean Air Act (CCAA) established California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The CCAA requires attainment of California Ambient Air Quality Standards (CAAQS) for criteria pollutants by the earliest practicable date. Generally, the CAAQS are more stringent than the NAAQS. The CAAQS are also summarized in Table 3-1.

The U.S. Environmental Protection Agency (U.S. EPA) is responsible for enforcing the CAA. The California Air Resources Board (CARB) is responsible for enforcing the CCAA and has also delegated responsibility to local air quality management districts, such as the Ventura County Air Pollution Control District (APCD). Ventura County APCD has jurisdiction over this project, and is responsible for enforcement of air quality regulations in the project area; air quality permits will be required from the Ventura County APCD, for project activities or equipment that emit air contaminants. The air quality minimization measures outlined in Section 2.5.1 are in addition to measures that may be required by the Ventura County APCD project permit, to be determined.

NBVC SNI is located within Ventura County. Ventura County is located in the South Central Coast Air Basin, which is composed of Ventura County, Santa Barbara County, and San Luis Obispo County. The

Ventura County portion of the South Central Coast Air Basin includes the onshore activities of Ventura County and the Port of Hueneme and its approach corridors. Offshore marine emission sources occur in the region beyond the 3-mile State Tidelands boundary, in the Outer Continental Shelf (OCS), and include the offshore shipping lanes in the Santa Barbara Channel and San Nicolas Island (Ventura County APCD 2008). The OCS region includes those waters between 3 and 100 miles from shore.

Table 3-1: NAAQS, CAAQS, and Ventura County's Attainment Status

Criteria Pollutant	Averaging Time	California Standards		Federal Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone (O_3)	8 hour	0.070 ppm (137 µg/m^3)	N	0.075 ppm	N
	1 hour	0.09 ppm (180 µg/m^3)	N	revoked	--
Carbon monoxide (CO)	8 hour	9.0 ppm (10 mg/m$^{3)}$	A	9.0 ppm (10 m/m^3)	A
	1 hour	20.0 ppm (23 mg/m^3)	A	35.0 ppm (40 µg/m^3)	A
Nitrogen dioxide	annual average	0.030 ppm (57 µg/m^3)	A	0.053 ppm (100 µg/m^3)	A
	1 hour	0.18 ppm (339 µg/m^3)	A	0.100 ppm (188 µg/m^3)	A
Sulfur dioxide	24 hour	0.04 ppm (105 µg/m^3)	A	revoked	--
	3 hour	--	--	0.5 ppm (1,300 µg/m^3) (secondary standard)	A
	1 hour	0.25 ppm (655 µg/m^3)	A	0.075 ppm (196 µg/m^3)	A
PM_{10}	annual arithmetic mean	20 µg/m^3	N	Revoked	--
	24 hour	50 µg/m^3	N	150 µg/m^3	A
$PM_{2.5}$	annual arithmetic mean	12 µg/m^3	N	15 µg/m^3	A
	24 hour	--	--	35 µg/m^3	A

Notes:
µg/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
ppm = parts per million
A = Attainment
N = Nonattainment
U = Unclassified
-- = no standard established

Ventura County is in nonattainment with the NAAQS and CAAQS for ozone and CAAQS for particulate matter with a diameter of less than 10 micrometers (PM_{10}) and particulate matter with a diameter of less than 2.5 micrometers ($PM_{2.5}$). However, because NBVC SNI and the offshore shipping lanes are within the OCS, they are located outside the nonattainment area for the federal NAAQS for ozone (Ventura County APCD 2008). Ventura County is in attainment with the NAAQS and CAAQS for all other criteria pollutants.

Federal Rules and Regulations

Criteria Pollutants

Federal agencies are required to determine if their actions have the potential to cause a NAAQS to be exceeded in areas in nonattainment for NAAQS or in maintenance areas (areas formerly in nonattainment but now in attainment). Two federal "conformity rules" dictate how a federal agency is required to conduct this evaluation. One conformity rule is applicable to transportation projects (the Transportation Conformity Rule); the other (the General Conformity Rule) is applicable to non-transportation projects, such as the Proposed Action. The General Conformity Rule regulations are contained in 40 CFR, Part 51, Subpart W, and Part 93, Subpart B. Navy policy and procedures for compliance with the General Conformity Rule are provided in OPNAVINST 5090.01C, Environmental Readiness Program Manual (18 July 2011). APCD Rule 220 also contains General Conformity procedures.

Specifically, a federal agency must demonstrate that emissions from federal actions are less than certain threshold levels for those criteria pollutants where the area is in nonattainment or maintenance. If project emissions are expected to exceed threshold levels, then a more detailed quantitative conformity determination is required to demonstrate that the federal action would not cause a NAAQS to be exceeded. Thresholds, called *de minimis* levels, have been established for nitrogen oxides (NOx) and reactive organic compounds (ROCs), the precursors to ozone, as well as for PM_{10} and $PM_{2.5}$.

Greenhouse Gases

Aside from water vapor, which is a naturally occurring GHG that accounts for the largest percentage of the greenhouse effect, the most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (such as hydrofluorocarbons) and sulfur hexafluoride. Each GHG is assigned a global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which

has a value of 1. For example, CH_4 has a GWP of 21, which means that it has a global warming effect 21 times greater than CO_2 on an equal-mass basis (California Climate Action Registry 2009). The GWP of N_2O is 310 (California Climate Action Registry 2009). To simplify the analysis, total GHG emissions from a source are often expressed as CO_2-equivalents (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs.

The U.S. EPA has promulgated regulations (40 CFR Part 98) that require mandatory reporting of GHG emissions for certain industrial operations. Most of these industrial operations are large emitters of GHGs, such as electricity generation facilities, oil refineries, or manufacturing operations. However, mandatory reporting is also required for combustion sources, such as boilers and stationary engines that emit more than 25,000 metric tons of CO_2e per year.

The potential effects of greenhouse gas emissions are by nature global and cumulative impacts, as individual sources of greenhouse gas emissions are not large enough to have an appreciable effect on climate change. Therefore, the impact of greenhouse gas emissions associated with the project is discussed in the context of cumulative impacts in Chapter 4 of this EA.

State Rules and Regulations

Criteria Pollutants

The CAA requires each state to develop, adopt, and implement a State Implementation Plan (SIP) to achieve, maintain, and enforce NAAQS throughout the state. SIP documents are developed on a pollutant-by-pollutant basis whenever one or more NAAQS is being violated. If an area is redesignated from nonattainment to attainment, the CAA requires a revision to the SIP, called a maintenance plan, to demonstrate how the air quality standard will be maintained for at least 10 years. In California, local air pollution control districts have primary responsibility for developing and adopting the regional elements of the California SIP.

Greenhouse Gases

On September 27, 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32 (California Global Warming Solutions Act 2006), which requires CARB to develop and implement regulations to reduce GHG emissions by 2020.

Greenhouse gasses will be analyzed in Chapter 4 Cumulative Impacts.

Toxic Air Contaminants (TACs)

Toxic air contaminants (TACs) include asbestos, lead, and diesel exhaust particulates. The generator proposed for use at the asphalt batch plant would generate diesel exhaust particulates. Other emission sources associated with hot mix asphalt production include the dryers, hot bins, and mixers, which emit particulate matter and gaseous pollutants, including TACs. The generator for the asphalt batch plant, and the asphalt batch plant itself, would not be used for any permanent operations at NBVC SNI because of the duration of the proposed construction project. Still, these sources must be considered stationary rather than portable because the proposed use would be for longer than 12 consecutive months. In addition, the main and auxiliary engines associated with the tug would also emit diesel exhaust particulates.

Per the California Health and Safety Code, CARB has established an Airborne Toxic Control Measure (ATCM) to reduce particulate matter emissions from stationary diesel-fueled compression ignition engines; however, stationary diesel-fueled compression ignition engines operated on NBVC SNI are exempt from these regulations. Nevertheless, CARB established an Air Toxics "Hot Spots" Program to identify risks to human health associated with particulate matter associated with stationary diesel-fueled engines pursuant to AB 2588. Screening risk assessment tables have been developed by CARB that engine owners can use to estimate their overall facility risk from diesel engine exhaust particulate matter from stationary diesel engines to streamline the evaluation of stationary diesel engines potentially subject to CARB's AB 2588 "Hot Spots" Program (CARB 2011b). Generally, no further risk analysis is required if the screening risk assessment thresholds in the tables are not triggered. If risk thresholds in the tables are triggered, then a more refined health risk analysis using site-specific information including local meteorology data would be required.

On July 24, 2008, CARB promulgated regulations (known as the "Ocean-Going Vessel [OGV] Clean Fuel Regulations") requiring the use of low sulfur fuels for all oceangoing vessels traveling in "regulated California waters" (Title 13, California Code of Regulations [CCR], Section 2299.2 and Title 17, CCR, Section 93118.2). NBVC SNI originally was outside of these regulated California waters; however, on June 23, 2011, CARB adopted amendments to these regulations, which expands the boundaries of the regulated California waters to include NBVC SNI. The adopted amendments primarily address conflicts between vessel traffic within the Navy's Point Mugu Sea Test Range, to avoid the regulated California waters covered in the original regulations (CARB 2011a). Effective July 1, 2009, Phase 1 of the

regulations required use of marine gas oil with a maximum sulfur content of 1.5 percent or marine diesel oil with a maximum sulfur content 0.5 percent. Phase 2 required the use of marine gas oil or marine diesel oil with a maximum sulfur content of 0.1 percent. Originally, Phase 2 was required to be implemented by January 1, 2012, but now it is being proposed to be required by January 1, 2014. Finally, Phase 1 requirements are proposed to be amended to also reduce the sulfur content of marine gas oil from 1.5 percent to 1 percent by August 1, 2012. Public comments on CARB's amendments were due on August 9, 2011.

Local Rules and Regulations

APCD's tasks include monitoring of air pollution, preparation and implementation of its portion of the SIP, and promulgation of rules and regulations. The SIP for each air district includes strategies and tactics to be used to attain and maintain acceptable air quality in each jurisdiction, including establishing annual air emission budgets for the area. The 2007 Air Quality Management Plan is the SIP for Ventura County, which presents a strategy for attaining the federal 8-hour ozone standard.

The APCD's rules and regulations include procedures and requirements to control emissions of pollutants and prevent significant impacts. The APCD rules that are applicable to the proposed project are listed in Table 3-2. These rules regulate fugitive dust emissions and regulate the use of certain materials and certain procedures for asphalt paving operations.

Finally, all stationary sources associated with operations at NBVC SNI are regulated under a Title V, Federal Operating Permit (Part 70 Permit No. 1207).

Table 3-2: Applicable APCD Rules

Rule	Title
23	Exemptions from Permit
50	Opacity
51	Nuisance
55	Fugitive Dust
69	Asphalt Air Blowing (Prohibition)
74.4	Cutback Asphalt (Prohibition)
74.9	Stationary Internal Combustion Engines

3.1.2 Affected Environment

NBVC SNI is characterized as a Mediterranean climate of relatively warm dry summers and mild wet winters (U.S. Navy 2010b). The typical daily wind pattern is a light to moderate northwesterly wind. The Channel Islands are often enshrouded in fog, called the marine layer. Ambient air pollutant concentrations in the South Central Coast Air Basin are measured at air quality monitoring stations operated by the APCD. However, because of the remote location of NBVC SNI, none of these monitoring stations are representative of conditions on NBVC SNI. Airborne particulate matter and exhaust emissions at NBVC SNI are generated by various sources. Particulate matter becomes airborne from vehicle travel on paved and unpaved roads; training exercises; and landscaping, maintenance, and construction. Exhaust emissions of various criteria pollutants are generated by vehicle traffic; aircraft operations; weapons firing; maintenance, landscaping, and construction equipment and vehicles; and stationary sources such as diesel generators.

The proposed project is not subject to the General Conformity Rule because NBVC SNI and the offshore shipping lanes are located outside of the nonattainment area for the federal NAAQS for ozone. However, this analysis used the General Conformity thresholds to evaluate the significance of air quality impacts (see Standards below).

3.1.3 Standards

Although NBVC SNI and the shipping lanes are not within Ventura County's nonattainment area for the federal ozone standard, the General Conformity Rules' threshold levels are still relevant thresholds for evaluating whether the project would violate the SIP or NAAQS or CAAQS for criteria pollutants. Maintenance areas have threshold levels of 100 tons per year for NOx, PM_{10}, and $PM_{2.5}$, and 50 tons per year for ROCs. These levels were used to determine whether air quality impacts are significant.

There are no formal federal thresholds of significance for GHG emissions. However, on February 18, 2010, CEQ released draft guidance for consideration of the effects of GHG emissions in NEPA documents (CEQ 2010). Within this guidance document, CEQ recommends that "federal agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public" for annual construction and operation emissions of 25,000 metric tons or more of CO_2e of GHGs per year. CEQ also encourages "federal agencies to consider whether the action's long-term emissions should receive similar analysis" for long-term actions that have annual direct emissions of

less than 25,000 metric tons of CO_2e. These are not thresholds of significance, but rather, thresholds indicating that further analysis may be warranted in a NEPA document.

3.1.4 Environmental Consequences of the Proposed Action

For the Proposed Action, emissions calculations assumed that Daytona Beach would be used 50 percent of the time and that Coast Guard Beach would be used the remaining 50 percent of time. The asphalt batch plant would operate from a diesel (JP-5 fuel) powered generator, and the asphalt hot-mix process would also use JP-5 fuel. Operation of the asphalt batch plant would emit PM; the combustion products CO_2, NO_x, and SO_x; CO; and small amounts of volatile organic compounds, methane, and other hazardous air pollutants. The sources of these pollutants include dryers, hot bins, mixers, storage devices, hot oil heaters, and yard emissions from truck loading and material transport (U.S. EPA 2000, 2004). References and assumptions used to conduct air emissions calculations are included in Appendix A. Annual construction emissions associated with the Proposed Action are shown in Tables 3-3 through 3-7. Greenhouse gas emissions are analyzed only in Chapter 4 Cumulative Impacts.

Table 3-3: Year One Construction Emissions for Proposed Action (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.013	1.59	0.16	NA	0.020	0.020	150.1	0.003	0.0009
Transfer of Aggregate to Beach	0.024	0.068	0.19	0.0002	0.15	0.15	20.5	0.002	0.0007
Aggregate Hauling	0.034	0.10	0.30	0.00040	0.011	0.011	38.94	0.003	0.0009
Asphalt Batch Plant									
Operation of the Plant	0.015	0.36	0.022	0.041	0.15	0.15	32.9	0.007	NA
Generator	0.0047	0.073	0.033	0.00016	0.00136	0.00136	14.2	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.15	4.63	5.75	NA	6.01	1.51	694.1	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.64	1.17	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	**1.24**	**6.82**	**6.46**	**0.04**	**11.98**	**3.01**	**950.74**	**0.015**	**0.0031**

Notes:
NA Not applicable

Table 3-4: Year Two Construction Emissions for Proposed Action (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.071	0.20	0.57	0.0007	0.45	0.45	61.5	0.006	0.0022
Aggregate Hauling	0.091	0.27	0.82	0.0011	0.029	0.029	105.47	0.008	0.0024
Asphalt Batch Plant									
Operation of the Plant	0.10	1.74	0.11	0.20	0.67	0.67	160.8	0.032	NA
Generator	0.0047	0.073	0.033	0.00016	0.00136	0.00136	14.2	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.10	4.45	5.39	NA	5.64	1.42	709.7	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.30	1.10	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.079	0.39	0.41	0.0015	0.015	0.015	146.3	0.007	0.0025
Fugitive Dust	NA	NA	NA	NA	8.2	8.2	NA	NA	NA
Total	**1.46**	**9.51**	**7.57**	**0.20**	**20.33**	**11.9**	**1,423.2**	**0.057**	**0.0091**

Notes:
NA Not applicable

Table 3-5: Year Three Construction Emissions for Proposed Action (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.025	3.19	0.32	NA	0.039	0.039	300.3	0.005	0.0018
Transfer of Aggregate to Beach	0.044	0.13	0.36	0.0004	0.28	0.28	38.1	0.004	0.0014
Aggregate Hauling	0.121	0.36	1.09	0.0014	0.039	0.039	140.37	0.011	0.0032
Asphalt Batch Plant									
Operation of the Plant	0.14	2.37	0.15	0.27	0.91	0.91	219.3	0.044	NA
Generator	0.0047	0.073	0.033	0.00016	0.00136	0.00136	14.2	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.07	4.41	5.21	NA	5.45	1.37	746.8	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.11	1.06	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.11	0.54	0.57	0.0021	0.021	0.021	201.1	0.010	0.0034
Fugitive Dust	NA	NA	NA	NA	8.9	8.9	NA	NA	NA
Total	**1.51**	**11.07**	**7.73**	**0.27**	**20.75**	**12.62**	**1,660.2**	**0.0744**	**0.0104**

Notes:
NA Not applicable

Table 3-6: Year Four Construction Emissions for Proposed Action (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.032	0.092	0.26	0.0003	0.20	0.20	27.8	0.003	0.0010
Aggregate Hauling	0.091	0.27	0.82	0.0011	0.029	0.029	105.47	0.008	0.0024
Asphalt Batch Plant									
Operation of the Plant	0.13	2.05	0.13	0.24	0.79	0.79	189.7	0.038	NA
Generator	0.0047	0.073	0.033	0.00016	0.00136	0.00136	14.2	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.099	0.50	0.52	0.0019	0.019	0.019	184.0	0.009	0.0031
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**0.376**	**5.375**	**2.003**	**0.243**	**9.17**	**9.17**	**746.37**	**0.062**	**0.0085**

Notes:
NA Not applicable

Table 3-7: Year Five Construction Emissions for Proposed Action (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.032	0.092	0.26	0.0003	0.20	0.20	27.8	0.003	0.0010
Aggregate Hauling	0.091	0.27	0.82	0.0011	0.029	0.029	105.47	0.008	0.0024
Asphalt Batch Plant									
Operation of the Plant	0.13	2.05	0.13	0.24	0.79	0.79	189.7	0.038	NA
Generator	0.0047	0.073	0.033	0.00016	0.00136	0.00136	14.2	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.099	0.50	0.52	0.0019	0.019	0.019	184.0	0.009	0.0031
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**0.3757**	**5.375**	**2.003**	**0.243**	**9.17**	**9.17**	**746.37**	**0.062**	**0.0085**

Notes:
NA Not applicable

Criteria Pollutants

As shown in the tables above, emissions of ROCs would not exceed the General Conformity threshold of 50 tons per year, nor would emissions of NOx, PM_{10}, or $PM_{2.5}$ exceed the threshold of 100 tons per year. Therefore, construction emissions associated with the Proposed Action would not result in violation of a NAAQS or CAAQS or a violation of the SIP. In addition, the Navy would implement APCD's standard dust control measures, as discussed in Chapter 2, under minimization measure AIR-1. Finally, cutback asphalt would not be used and asphalt air blowing would not be performed; therefore, construction would adhere to APCD Rules 69 and 74.4. As a result, implementation of the Proposed Action would result in short-term impacts to air quality that are less than significant.

TACs

Although the 150-hp stationary diesel-fueled engine for the asphalt batch plant is not subject to CARB's ATCM for stationary diesel-fueled compression ignition engines, CARB's screening risk assessment tables were used to evaluate whether a health risk assessment is warranted for this source. A conservative assumption was made that a 175-hp generator (note: closest size to 150-hp in the tables) would be used for 200 hours per year at 75 percent load, with the lowest efficiency factor of 1.0 grams per brake horsepower – hour (g/bhp-hr). Based on this assumption, cancer risk would not exceed 10 cases in one million as close as 400 meters (1,312 feet) from the asphalt batch plant. The nearest sensitive receptor to the asphalt batch plant would be temporary lodging within Nicktown, approximately 1 mile (5,280 feet) away from the asphalt batch plant. Thus, the emissions from the asphalt batch plant generator would not result in a significant health risk, and impacts would be short-term and less than significant.

As a result of the pending changes to CARB's OGV Clean Fuel Regulations, the tug must comply with these regulations. Implementation of minimization measure AIR-3 would ensure that either marine gas oil or marine diesel oil with a sulfur content of 1.0 percent is used for the tug engine to comply with these regulations. Therefore, impacts to air quality would be short-term and less than significant. No long-term impacts would occur.

3.1.5 Environmental Consequences of Alternative 2

For Alternative 2, implementation of roads and airfield repairs would be the same as in the Proposed Action. The only difference would be that only Daytona Beach would be used for barge beach landings. Annual construction emissions associated with Alternative 2 are shown in Tables 3-8 through 3-12.

Table 3-8: Year One Construction Emissions for Alternative 2 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.013	1.59	0.16	NA	0.020	0.020	150.1	0.003	0.0009
Transfer of Aggregate to Beach	0.024	0.068	0.19	0.0002	0.15	0.15	20.5	0.002	0.0007
Aggregate Hauling	0.042	0.12	0.38	0.0005	0.013	0.013	48.5	0.0038	0.0006
Asphalt Batch Plant									
Operation of the Plant	0.015	0.36	0.022	0.041	0.15	0.15	32.9	0.007	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.15	4.63	5.75	NA	6.01	1.51	694.1	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.64	1.17	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	**1.25**	**6.84**	**6.53**	**0.042**	**11.98**	**3.01**	**960.30**	**0.016**	**0.0028**

Notes:
NA Not applicable

Table 3-9: Year Two Construction Emissions for Alternative 2 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.071	0.20	0.57	0.0007	0.45	0.45	61.5	0.006	0.0022
Aggregate Hauling	0.11	0.31	0.95	0.0013	0.034	0.034	122.7	0.0095	0.001
Asphalt Batch Plant									
Operation of the Plant	0.10	1.74	0.11	0.20	0.67	0.67	160.8	0.032	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.10	4.45	5.39	NA	5.64	1.42	709.7	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.30	1.10	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.079	0.39	0.41	0.0015	0.015	0.015	146.3	0.007	0.002
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**1.48**	**9.55**	**7.70**	**0.20**	**20.24**	**11.82**	**1,440.40**	**0.059**	**0.0072**

Notes:
NA Not applicable

Table 3-10: Year Three Construction Emissions for Alternative 2 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.025	3.19	0.32	NA	0.039	0.039	300.3	0.005	0.0018
Transfer of Aggregate to Beach	0.044	0.13	0.36	0.0004	0.28	0.28	38.1	0.004	0.0014
Aggregate Hauling	0.15	0.44	1.34	0.0018	0.047	0.047	172.4	0.013	0.002
Asphalt Batch Plant									
Operation of the Plant	0.14	2.37	0.15	0.27	0.91	0.91	219.3	0.044	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.07	4.41	5.21	NA	5.45	1.37	746.8	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.11	1.06	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.11	0.54	0.57	0.0021	0.021	0.021	201.1	0.010	0.003
Fugitive Dust	NA	NA	NA	NA	8.9	8.9	NA	NA	NA
Total	**1.54**	**11.15**	**7.98**	**0.27**	**20.76**	**12.63**	**1,692.2**	**0.076**	**0.0088**

Notes:
NA Not applicable

Table 3-11: Year Four Construction Emissions for Alternative 2 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.032	0.092	0.26	0.0003	0.20	0.20	27.8	0.003	0.0010
Aggregate Hauling	0.11	0.31	0.95	0.0013	0.034	0.034	122.7	0.0095	0.001
Asphalt Batch Plant									
Operation of the Plant	0.13	2.05	0.13	0.24	0.79	0.79	189.7	0.038	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.099	0.50	0.52	0.0019	0.019	0.019	184.0	0.009	0.003
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**0.39**	**5.42**	**2.13**	**0.24**	**9.17**	**9.17**	**763.6**	**0.06**	**0.007**

Notes:
NA Not applicable

Table 3-12: Year Five Construction Emissions for Alternative 2 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.032	0.092	0.26	0.0003	0.20	0.20	27.8	0.003	0.0010
Aggregate Hauling	0.11	0.31	0.95	0.0013	0.034	0.034	122.7	0.0095	0.001
Asphalt Batch Plant									
Operation of the Plant	0.13	2.05	0.13	0.24	0.79	0.79	189.7	0.038	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.099	0.50	0.52	0.0019	0.019	0.019	184.0	0.009	0.003
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**0.39**	**5.41**	**2.13**	**0.24**	**9.17**	**9.17**	**763.6**	**0.06**	**0.007**

Notes:
NA Not applicable

Emissions associated with Alternative 2 vary by constituent from emissions associated with the Proposed Action and Alternative 3 as shown in the tables above. However, emissions still remain below General Conformity thresholds. In addition, emissions from the asphalt batch plant and tug would be identical to those under the Proposed Action. Therefore, with implementation of minimization measures AIR-1 through AIR-3, short-term impacts to air quality would be less than significant. No long-term impacts would occur.

3.1.6 Environmental Consequences of Alternative 3

Annual construction emissions associated with Alternative 3 are shown in Tables 3-13 through 3-17.

Table 3-13: Year One Construction Emissions for Alternative 3 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.0013	1.59	0.16	NA	0.020	0.020	150.1	0.003	0.0009
Transfer of Aggregate to Beach	0.024	0.068	0.19	0.0002	0.15	0.15	20.5	0.002	0.0007
Aggregate Hauling	0.025	0.07	0.23	0.0003	0.0081	0.0081	29.4	0.0023	0.0004
Asphalt Batch Plant									
Operation of the Plant	0.015	0.36	0.022	0.041	0.15	0.15	32.9	0.007	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.15	4.63	5.75	NA	6.01	1.51	694.1	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.64	1.17	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	**1.22**	**6.79**	**6.38**	**0.041**	**11.98**	**3.00**	**941.2**	**0.014**	**0.0026**

Notes:
NA Not applicable

Table 3-14: Year Two Construction Emissions for Alternative 3 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.071	0.20	0.57	0.0007	0.45	0.45	61.5	0.006	0.0022
Aggregate Hauling	0.076	0.22	0.68	0.0009	0.024	0.024	88.2	0.0069	0.0012
Asphalt Batch Plant									
Operation of the Plant	0.10	1.74	0.11	0.20	0.67	0.67	160.8	0.032	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.10	4.45	5.39	NA	5.64	1.42	709.7	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.30	1.10	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.079	0.39	0.41	0.0015	0.015	0.015	146.3	0.007	0.0025
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**1.45**	**9.46**	**7.43**	**0.20**	**20.23**	**11.81**	**1405.9**	**0.056**	**0.0079**

Notes:
NA Not applicable

Table 3-15: Year Three Construction Emissions for Alternative 3 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.025	3.19	0.32	NA	0.039	0.039	300.3	0.005	0.0018
Transfer of Aggregate to Beach	0.044	0.13	0.36	0.0004	0.28	0.28	38.1	0.004	0.0014
Aggregate Hauling	0.11	0.31	0.95	0.0013	0.034	0.034	122.8	0.0095	0.0016
Asphalt Batch Plant									
Operation of the Plant	0.14	2.37	0.15	0.27	0.91	0.91	219.3	0.044	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	1.07	4.41	5.21	NA	5.45	1.37	746.8	NA	NA
Fugitive Dust	NA	NA	NA	NA	5.11	1.06	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.11	0.54	0.57	0.0021	0.021	0.021	201.1	0.010	0.0034
Fugitive Dust	NA	NA	NA	NA	8.9	8.9	NA	NA	NA
Total	**1.50**	**11.02**	**7.59**	**0.27**	**20.75**	**12.61**	**1,642.6**	**0.073**	**0.0088**

Notes:
NA Not applicable

Table 3-16: Year Four Construction Emissions for Alternative 3 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.032	0.092	0.26	0.0003	0.20	0.20	27.8	0.003	0.0010
Aggregate Hauling	0.076	0.22	0.68	0.009	0.024	0.024	88.2	0.0069	0.0012
Asphalt Batch Plant									
Operation of the Plant	0.13	2.05	0.13	0.24	0.79	0.79	189.7	0.038	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.099	0.50	0.52	0.0019	0.019	0.019	184.0	0.009	0.0031
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**0.36**	**5.33**	**1.86**	**0.25**	**9.16**	**9.16**	**729.1**	**0.061**	**0.0073**

Notes:
NA Not applicable

Table 3-17: Year Five Construction Emissions for Alternative 3 (tons/year)

Construction Activities	ROCs	CO	NO_x	Sulfur oxides (SOx)	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_20
Tug Operations	0.019	2.39	0.24	NA	0.029	0.029	225.2	0.004	0.0014
Transfer of Aggregate to Beach	0.032	0.092	0.26	0.0003	0.20	0.20	27.8	0.003	0.0010
Aggregate Hauling	0.076	0.22	0.68	0.009	0.024	0.024	88.2	0.0069	0.0012
Asphalt Batch Plant									
Operation of the Plant	0.13	2.05	0.13	0.24	0.79	0.79	189.7	0.038	NA
Generator	0.00469	0.07328	0.03291	0.00016	0.00136	0.00136	14.19793	0.00042	0.00060
Roads Repairs									
Equipment Exhaust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fugitive Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA
Airfield Repairs									
Equipment Exhaust	0.099	0.50	0.52	0.0019	0.019	0.019	184.0	0.009	0.0031
Fugitive Dust	NA	NA	NA	NA	8.1	8.1	NA	NA	NA
Total	**0.36**	**5.33**	**1.86**	**0.25**	**9.16**	**9.16**	**729.1**	**0.061**	**0.0073**

Notes:
NA Not applicable

Emissions associated with Alternative 3 vary slightly to emissions associated with the Proposed Action and Alternative 2 as shown in the above tables. However, emissions still remain below General Conformity thresholds. Therefore, with implementation of minimization measures AIR-1 through AIR-3, short-term impacts to air quality would be less than significant. No long-term impacts would occur.

3.1.7 Environmental Consequences of the No-Action Alternative

There would be no air emissions under the No-Action Alternative. Therefore, there would be no impacts to air quality under the No-Action Alternative.

3.1.8 Mitigation Measures

With implementation of minimization measures AIR-1 through AIR-3, air quality impacts would be less than significant. Therefore, mitigation measures are not required.

3.2 BIOLOGICAL RESOURCES

Biological resources and their associated impact analyses are discussed in the following order: (1) vegetation communities, (2) federally listed plants, (3) non-federally listed rare plants, (4) federally listed wildlife, (5) non-federally listed rare wildlife, (6) marine communities, and (7) waters of the United States (WOUS). The following information on biological resources at NBVC SNI is based on a compilation of data from previous environmental documentation in the area, scientific literature review, and observational data specific to the Proposed Action footprint. These sources include, but are not limited to: the *Integrated Natural Resources Management Plan for Naval Base Ventura County, San Nicolas Island, California* (U.S. Navy 2010a); NAVFAC Southwest geographic information system (GIS) database; *Biological Opinion for Activities on San Nicolas Island, California (5090 Ser 8G0000D/7284) (1-8-01-F-14)* (USFWS 2001); *Final Environmental Impact Statement/Overseas Environmental Impact Statement, Point Mugu Sea Range* (U.S. Navy 2002b); *Final Environmental Assessment for the Restoration of San Nicolas Island's Seabirds and Protection of other Native Fauna by Removing Feral Cats* (H. T. Harvey & Associates 2009); *Final Environmental Assessment for the Development of Wind Energy Facilities on San Nicolas Island* (U.S. Navy 2010b); *Biological Opinion for the San Nicolas Island Wind Energy Project, Ventura County, California (8-8-10-F-35*) (USFWS 2010); and the *Naval Base Ventura County San Nicolas Island Biological Opinion 2010 Annual Report* (U.S. Navy 2011); U.S. Geological Survey information on the island night lizard (*Xantusia riversiana*) (Fellers and Drost 1991, Fellers and others 1998, Fellers and others 2009, Fellers and Drost 2011); and a Biological Assessment (BA) prepared for the proposed project (Tetra Tech 2011a).

3.2.1 Affected Environment

3.2.1.1 Vegetation Communities

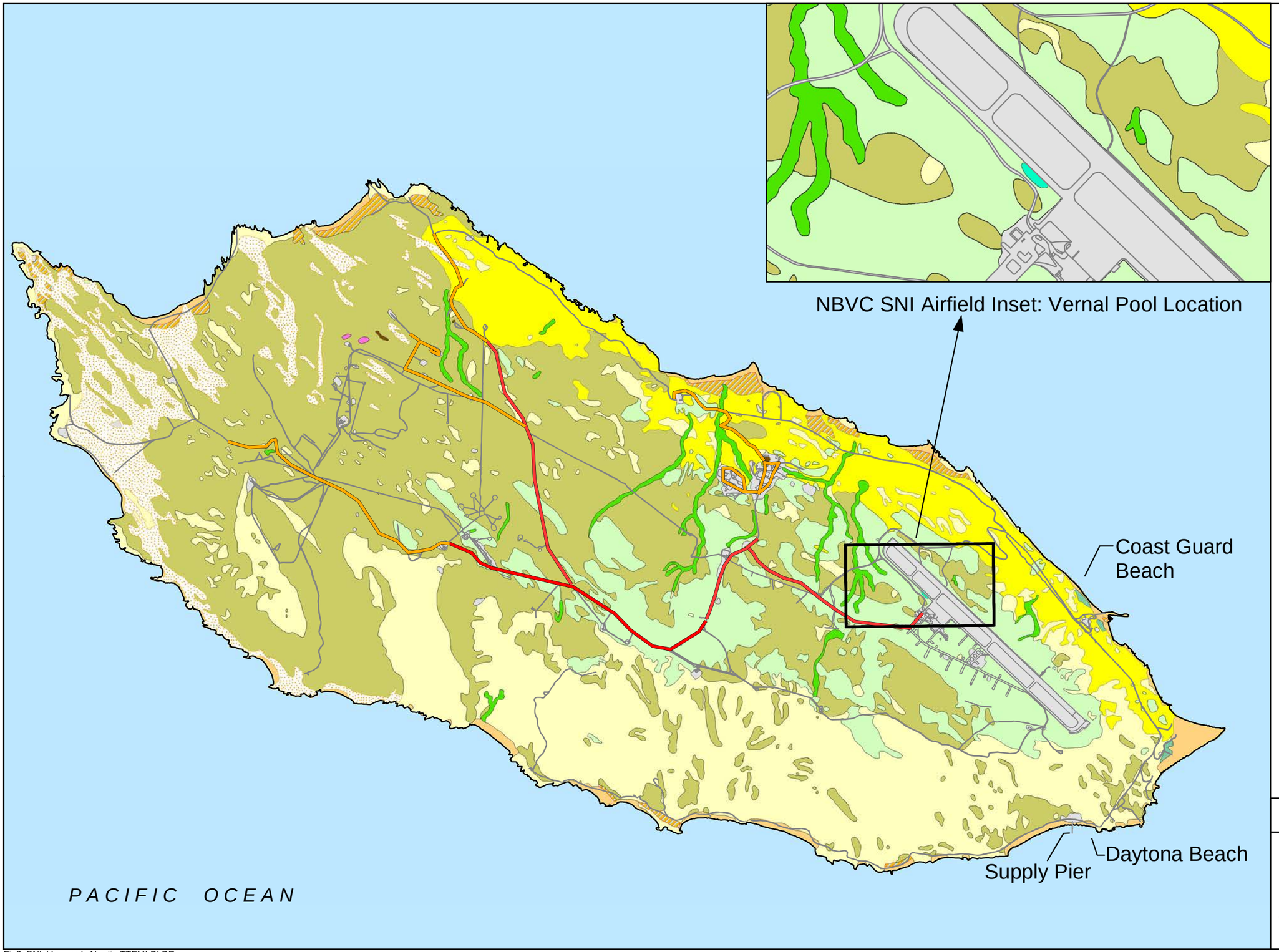
Vegetation within the Proposed Action areas was analyzed using the following sources of information: interviews conducted with Navy biologists; a literature review; a field visit conducted in August 2011; and GIS analysis of vegetation community maps.

Nine upland and three wetland plant communities have been mapped and classified at NBVC SNI (Halverson and others 1996). Six plant communities occur in the Proposed Action area, depicted on Figure 3-1 and described below.

Current maintenance of vegetated road and airfield shoulders involves mowing most sections of roads (except high-density island night lizard habitat along Owen Road) and the airfield to an 8-foot width. This practice is covered in regards to listed species, under the programmatic Biological Opinion for activities at NBVC SNI: *Biological Opinion for Activities on San Nicolas Island, California (5090 Ser 8G0000D/7284) (1-8-01-F-14)* (USFWS 2001). For the roads, this practice is conducted primarily to reduce mortality of foxes along roads by increasing visibility along shoulders.

Grassland

The grassland community includes native and non-native grasslands located in the central and eastern portions of NBVC SNI (Figure 3-1). Non-native grasses are dominant, with smaller patches of native grasses interspersed. Native grasses include purple needlegrass (*Nassella pulchra*) and annual vernal barley (*Hordeum intercendens*). Other natives in this community type include island tarplant (*Deinandra clementina*), goldfields (*Lasthenia gracilis*), owl's-clover (*Castilleja densiflora*) and yarrow (*Achillea millefolium*). Non-native grasses dominate the grassland landscape and include wild oats (*Avena barbatum*), slender oat (*Avena barbata*), bromes (*Bromus* spp.), and foxtail (*Hordeum murinum*). Other non-natives include Australian saltbush (*Atriplex semibacatta*), bristly oxtongue (*Picris echiodes*), filaree (*Erodium* sp.), and common sowthistle (*Sonchus oleareacus*). Repairs to roads and airfield shoulders occur in this vegetation community on top of the mesa, at Owen Road (south of Nicktown), Jackson Highway, Monroe Drive, and the airfield. Grassland at the airfield consists largely of monotypic stands of non-native wild rye (*Lolium perenne*). Road repairs that occur in grassland along Jackson Highway contain a dominance of non-native grasses, including bromes, slender oats, wild oats, red brome (*Bromus madritensis*), Australian saltbush, soft chess (*Bromus hordeaceus*), and bur clover (*Medicago polymorhpa*). Scattered individuals of scrub species such as coastal goldenbush (*Isocoma menziesii*) also occur. Patches of native grassland (purple needlegrass) occur in the Shannon Road segment.



Legend

- Phase I Road Repairs
- Phase II Road Repairs
- Roads

Vegetation Type

- Barren
- Beach
- Coastal Dune
- Coastal Marsh
- Coastal Scrub
- Coreopsis
- Developed
- Grassland
- Inland dune
- Lupine
- Pine Trees
- Riparian
- Vernal Pool

0.5 0.25 0 0.5 Miles

Naval Base Ventura County
San Nicolas Island, California

FIGURE 3-1

SAN NICOLAS ISLAND VEGETATION COMMUNITIES

Fig3_SNI_Veg.mxd; ALortie TTEMI-BLDR
Data Source: Tetra Tech EMI GIS databases & US Navy 2005.

Coastal Scrub ("Isocoma Scrub")

The most common coastal scrub community at NBVC SNI is Coastal Scrub, (also called "Isocoma scrub," but mapped by Halverson and others 1996, as "Coastal Scrub" [Figure 3-1]), consisting of low shrub cover dominated by coast goldenbush (*Isocoma menziesii*). This community has a variety of species assemblages and is the most diverse on the island. Of the native species found at NBVC SNI, 67 percent are in Isocoma scrub habitat. Species most widespread in this community are southern island silver lotus (*Lotus agophyllus* var. *argenteus*), rattlesnake weed (*Daucus pusillus*), bromes, iceplant (*Mesembryanthemum crystallinum*), and locally dominant patches of cactus (*Opuntia* spp.). Proposed road repairs occur in this habitat type, at the central and west end of the mesa along Jackson Highway and Shannon Road, and in a portion of Monroe Drive (Figure 3-1). Culverts that occur along Monroe Drive, in areas depicted on Figure 3-1 as "Grassland," contain a mix of grassland and coastal scrub species. As such, they are discussed in the impacts section under Coastal Scrub impacts.

Coreopsis Scrub

Coreopsis scrub is found on the cooler north-facing slopes in the northern portion of the island. Among the scrub communities present on NBVC SNI, coreopsis scrub has the highest canopy height, reaching 2 meters. In this community, giant coreopsis (*Coreopsis gigantea)* is the dominant overstory species, with a frequency of distribution reaching 100 percent. Understory species include annual grasses such as wild oats and bromes, filaree, yellow sweet clover (*Melilotus indica*), coast goldenbush, and silver lupine (*Lupinus albifrons* var. *douglasii*). This community is found along sections of Shannon Drive, north of Owen Road and adjacent to the Public Works area in Nicktown. It is also found in the area surrounding the proposed asphalt batch plant site, and Former Borrow Pit, above Coast Guard Beach (Figure 3-1).

Inland Dune

Inland dunes are sandy substrate, fairly stabilized (vegetated) dune systems. They characterize the ecotone between active dune systems and upland vegetation communities. Plant species common in this community includes Trask's locoweed (*Astragalus traskiae*) and iceplant (*Carpobrotus edulis*). Inland dunes are present within the footprint of the Proposed Action at north Shannon Road, near the intersection of NAVFAC West.

Riparian

Riparian vegetation communities are found within the deep drainages and canyon bottoms, associated with intermittent stream flow or in swales on top of the mesa. Vegetation within these areas consists of saltgrass (*Distichlis spicata*), cattails (*Typha* spp.), willow dock (*Rumex salicifolia* var. *salicifolia*), rabbitsfoot grass (*Polypogon monspeliensis*), brass buttons (*Cotula coronopifolia*), and arroyo willow (*Salix lasiolepis*), among others. The Proposed Action includes culvert repairs in drainages. One culvert repair in the Proposed Action area at Owen Road contains a riparian plant community. Culvert repairs at Monroe Drive occur in drainages that are highly eroded and contain a mix of grassland and coastal scrub vegetation. The riparian community in these drainages likely occurs farther downstream of the proposed project area, as displayed in Figure 3-1. Likewise, other culvert repairs in the footprint of the Proposed Action contain vegetation characteristic of the surrounding upland grassland or mixed shrub communities.

Beach

Sandy, unvegetated beaches characterize a large portion of shoreline at NBVC SNI. Dune complexes form farther inland of sandy beaches and are composed of a variety of plant species tolerant of the dynamic dune environment. The footprint of the Proposed Action at Daytona Beach and Coast Guard Beach is sandy, unvegetated beach and lacks dune morphology that is more common on the west side of the island.

Vernal Pools

Vernal pools are present on the mesa at the western and northeastern portions. Vernal pools are ephemeral aquatic features that contain unique flora and fauna that emerge in response to winter rains. These pools dry out and become dormant during the summer. Species found in vernal pools at NBVC SNI include pale spikerush (*Eleocharis macrostachya*), toad rush (*Juncus bufonius*), sickle grass (*Parapholis incurve*) and Persian knotweed (*Polygonum argyrocoleon*). One vernal pool is adjacent to the airfield (Figure 3-1), at the southwest perimeter. Most of the seasonally wet depressions are manmade creations, the result of Navy operations. Historically however, the airfield area contained many vernal pools mapped by early surveyors as “dry lakes,” prior to Navy construction of the airfield (Junak 2008).

Developed Areas

Developed areas consist of buildings, roads, paved areas, maintained road shoulders, and ornamental landscaping. These areas are largely devoid of native vegetation and provide no suitable habitat for

native vegetation, except in the instance that ornamental landscaping could be replaced by native species. Landscaped areas may provide some value for wildlife. Pine trees shown on Figure 3-1 are ornamental landscaping and are outside the footprint of the Proposed Action, as such, they are not discussed further in this document.

Barren

Barren areas include windswept slopes of the southern escarpment and previously disturbed cleared areas such as staging sites and dirt pullouts. Areas within the Proposed Action area that are mapped as barren include the Former Borrow Pit, the site of the proposed asphalt batch plant, and the access road from Coast Guard Beach to the Former Borrow Pit (Figure 3-1). During the August 2011 site visit, these areas were observed to have scattered occurrences of weedy species such as yellow sweet clover (*Melilotus indicus)*, iceplant (*Carpobrotus* sp.), and Australian saltbush (*Atriplex semibaccatta*). A small amount of coastal scrub vegetation is recruiting from the adjacent scrub community at the Former Borrow Pit. Species include yellow and white clover (*Melilotus alba*), bromes, saltgrass and coast goldenbush.

3.2.1.2 Federally Listed Plant Species

No federally listed plant species are known to occur at NBVC SNI (U.S. Navy 2010a).

3.2.1.3 Non-Federally Listed Rare Plant Species

Table 3-18 details the plants on the California Native Plant Society's (CNPS) California Rare Plant Rank that have the potential to occur within the footprint of the Proposed Action. A literature review of rare plant surveys conducted at NBVC SNI from 1992 through 2003 indicates that eight special status species have medium to high potential to occur in the project boundaries (Junak and others 1995, Junak and others 1996, Junak 2003).

During a site visit (field reconnaissance only) made in August 2011, two plants on the CNPS list were observed in the footprint of the Proposed Action: island morning-glory (*Calystegia macrostegia* ssp. *amplissima*) and island tarplant (*Dienandra clementina*). Island morning-glory was observed along the western sections of Jackson Highway and Shannon Road; island tarplant was observed at the northern perimeter of the airfield.

Table 3-18: Non-Federally Listed Plant Species Known to Occur on NBVC SNI and Having the Potential to Occur within the Proposed Action Footprint

Species	CNPS Rank[1]	Habitat	Potential to Occur within the Proposed Action Area
Abronia maritima Sticky sand verbena	4.2	Coastal dunes	Not expected
Achnatherum diegoense San Diego needlegrass	4.2	Coastal scrub, rocky soils	Moderate
Aphanisma blitoides Aphanisma	1B.2	Coastal bluff	Not expected
Artemisia nesiotica[2] Island sagebrush	4.3	Coastal scrub, Grassland, gullies	Moderate
Astragalus traskiae[2] Trask's locoweed	1B.2	Dunes, Bluff	High
Atriplex pacifica South coast saltscale	1B.2	Dunes, Bluff	Low
Calystegia macrostegia ssp. *amplissima* Island morning-glory	4.3	Coastal scrub, Dunes, Bluff, Grassland	Observed August 2011
Cryptantha traskiae[2] Trask's cryptantha	1B.2	Dunes, Bluff, Coastal scrub	Low
Dienandra clementina[2] Island tarplant	4.3	Coastal scrub, Grassland	Observed August 2011
Dithyrea maritime Beach spectacle-pod	1B.1	Sandy soils	Not expected
Dudleya virens ssp. *insularis* Palos Verde live-forever	1B.2	Bluff, Coastal scrub	Moderate
Eriogonum grande var. *timorum*[3] San Nicolas Island buckwheat	1B.1	Bluff, Coastal scrub	Not expected
Eschsholzia ramosa[2] Island poppy	4.3	Bluff, Coastal scrub, Dunes	Not expected
Gilia nevinii[2] Island gilia	4.3	Bluff, Coastal scrub, Grassland	Not expected (Extirpated)
Hordeum intercedens Vernal barley	3.2	Clay, Saline, Vernal	High
Jepsonia malvifolia[2] Island jepsonia	4.2	Grassland, Clay	Low
Lavatera assurgentiflora Island mallow	1B.1	Bluff, Coastal scrub/sandy or rocky	Low
Lomatium insulare[2] San Nicolas Island lomatium	1B.2	Bluff, Sandy	Moderate
Lycium californicum California box-thorn	4.2	Bluff, Coastal scrub	Moderate
Lycium verrucosum[3] San Nicolas Island boxthorn	1A	Bluff, Coastal scrub	Not Expected (Presumed Extinct)
Malacothrix foliosa ssp. *polycephala*[3] San Nicolas Island malacothrix	4.2	Coastal scrub, Dunes	High

Table 3-18: Non-Federally Listed Plant Species Known to Occur on NBVC SNI and Having the Potential to Occur within the Proposed Action Footprint (Cont.)

Species	CNPS Rank[1]	Habitat	Potential to Occur within the Proposed Action Area
Malacothrix incana Dunedelion	4.3	Coastal scrub, Dunes	High
Orobanche parishii ssp. *brachyloba* Short-lobed broom-rape	4.2	Sandy soils	Low
Phacelia cinerea Ashy phacelia	1A	Meadows and seeps	Not Expected (Presumed Extinct)
Suaeda taxifolia Woolly seablite	4.2	Coastal Bluff, Scrub, Dunes, Marshes	Low
Trifolium palmeri[2] South island clover	4.2	Coastal scrub, Grassland	Moderate

Notes:

1 California Native Plant Society Rare Plant Rank:
- 1A: Plants presumed extinct in California
- 1B.1: Considered rare, threatened, or endangered in California and elsewhere; seriously threatened in California
- 1B.2: Considered rare, threatened, or endangered in California and elsewhere; fairly threatened in California
- 3.2: Plants about which we need more information; fairly threatened in California
- 4.2: Plants of limited distribution; fairly threatened in California
- 4.3: Plants of limited distribution; not very threatened in California

2 Channel Islands endemic.

3 San Nicolas Island endemic.

3.2.1.4 Federally Listed Wildlife Species

Available data was analyzed for all federally listed wildlife species records within the footprint of the Proposed Action. Background data and previous environmental documentation were used to assess the status, distribution, and known locations of federally listed species on NBVC SNI. These sources included the *Integrated Natural Resources Management Plan for Naval Base Ventura County, San Nicolas Island, California* (U.S. Navy 2010a); NAVFAC Southwest GIS database; *Biological Opinion for Activities on San Nicolas Island, California (5090 Ser 8G0000D/7284) (1-8-01-F-14)* (USFWS 2001); *Final Environmental Impact Statement/Overseas Environmental Impact Statement, Point Mugu Sea Range* (U.S.Navy 2002b); *Final Environmental Assessment for the Restoration of San Nicolas Island's Seabirds and Protection of other Native Fauna by Removing Feral Cats* (H. T. Harvey & Associates 2009); *Final Environmental Assessment for the Development of Wind Energy Facilities on San Nicolas Island* (U.S. Navy 2010b); *Biological Opinion for the San Nicolas Island Wind Energy Project, Ventura County, California (8-8-10-F-35)* (USFWS 2010); and the *Naval Base Ventura County San Nicolas Island Biological Opinion 2010 Annual Report* (U.S. Navy 2011); U.S. Geological Survey information on the island night lizard (*Xantusia riversiana) (*Fellers and Drost 1991, Fellers and others 1998, Fellers and others 2009, Fellers and Drost 2011); and this Project's Biological Assessment (Tetra Tech 2011a).

Additionally, a project-specific survey was conducted in June 2011 to assess the habitat of the proposed project area for island night lizards.

Three federally listed wildlife species are known to occur presently or historically within NBVC SNI, including the island night lizard, western snowy plover (*Charadrius alexandrinus nivosus*), and Guadalupe fur seal (*Arctocephalus townsendii*) (U.S. Navy 2010a). The NBVC SNI population of southern sea otter (*Enhydra lutris nereis*) under Public Law 99-625 is not federally listed as a result of exemptions under of the Sea Otter Translocation Program, but is fully protected under the MMPA (USFWS 2003). The Guadalupe fur seal is also fully protected under the MMPA and the Fish and Game Code of California (Chapter 8, Section 4700 d). Guadalupe fur seals do not breed at NBVC SNI and only individual fur seals have been observed intermittently over the last few years hauled out along the southwest portion of the coast (U.S. Navy 2010a). Records indicate they are not likely to occur on the eastern portion of NBVC SNI, at the Coast Guard or Daytona Beach Proposed Action areas.

One federally listed endangered marine invertebrate species, black abalone (*Haliotis cracherodii*), is known to occur at NBVC SNI. Black abalone inhabits rocky intertidal areas, often within the high energy surf zone (California Marine Life Protection Act Initiative [CMLPAI 2009], U.S. Navy 2010a). This species is not expected to occur in the Proposed Action areas at Daytona Beach or Coast Guard Beach, and is not expected to occur in the areas that barges will place anchors offshore.

Based on the habitat assessments, distribution of habitat types, and existing island-wide rare species data, the western snowy plover and island night lizard are known to occur within the action area and are discussed in more detail below (Table 3-19 and Figure 3-2). A Biological Assessment (Tetra Tech 2011a) was prepared for the proposed project in support of formal Section 7 consultation with USFWS for potential impacts on the island night lizard and western snowy plover.

Table 3-19: Federally Listed Wildlife Species Known to Occur on NBVC SNI and Having the Potential to Occur within the Proposed Action Footprint

Common Name ***Scientific Name***	**Federal Status**	**Habitat**	**Occurrences on NBVC SNI**	**Potential to Occur within the Proposed Action Area**
Island night lizard *Xantusia riversiana*	Threatened 8/11/1977 (42 FR 40682)	Prefers boxthorn, prickly pear cactus, and cracks and crevices in and around rock outcrops and surface boulders	Generally distributed over the eastern half of the island, with the exception of a few isolated populations along the western and southern shore	High probability of occurrence: Proposed Action occurs in mix of high- to low-quality habitats (Fellers and Drost 2011)
Western snowy plover *Charadrius alexandrinus nivosus*	Threatened 3/5/1993 (58 FR 12864)	Habitat includes intertidal beaches, associated dune systems, and river estuaries	Present year-round that forage and nest on the beaches and intertidal zones of NBVC SNI	High probability of occurrence: Proposed Action occurs in suitable western snowy plover habitat
Guadalupe fur seal *Arctocephalus townsendi*	Endangered 12/16/1985 (50 FR 51252)	Primary habitat consists of rocky areas at the base of high cliffs and in sea caves	Uncommon on the southwest shore of NBVC SNI	Not expected.
Black abalone *Haliotis cracherodii*	Endangered 1/14/2009 (74 FR 1937)	Rocky intertidal, high surf energy zones	Fairly common year-round, occurring around the perimeter of NBVC SNI shoreline, within crevices of rocky reef in the intertidal zone.	Not expected

Coast Guard Beach Action Area Inset

Tender Beach

Tufts Road

Shannon Road

Owen Road

Public Works
Storage Yard

Nicktown

Beach Road

Former Borrow Pit

Coast Guard Beach

Jackson Highway

Owen Road

Monroe Drive

Monroe Borrow Pit

Proposed Temporary
Asphalt Batch Plant

Contractor Yard

Airfield Laydown Area

Sand Spit

Supply Pier

Daytona Beach

PACIFIC OCEAN

Legend

- Culvert Repairs Included in Lizard Impact Calculations
- Stockpile and Storage Areas
- Proposed Beaches
- Phase I Road Repairs
- Phase II Road Repairs
- Roads
- Western Snowy Plover Breeding & Winter Habitat (US Navy 2010a)

Island Night Lizard Density
(Fellers et.al. 1998)

- Absent
- Very low numbers, widely scattered individuals
- Moderate to low numbers, scattered populations
- High numbers, extensive population

N

0.5 0.25 0 0.5 Miles

Naval Base Ventura County
San Nicolas Island, California

FIGURE 3-2
SAN NICOLAS ISLAND
WESTERN SNOWY PLOVER
& ISLAND NIGHT LIZARD
HABITAT

Fig3-2_SNI_WSPINL.mxd; ALortie TTEMI-BLDR
Data Source: Tetra Tech EMI GIS databases & US Navy 2010a

Western Snowy Plover

The western snowy plover is a subspecies of snowy plover that breeds and winters on beaches along the Pacific coastline from southern Washington State to Magdalena Bay, Baja Sur, Mexico. The Pacific Coast population of the western snowy plover was listed as threatened March 5, 1993 (58 Federal Register [FR] 12864) (USFWS 2011).

The western snowy plover is a small shorebird, distinguished from other plovers (family Charadriidae) by its small size, pale brown upper parts, dark patches on either side of the upper breast, and dark gray to blackish legs (USFWS 2011). The western snowy plover prefers undisturbed flat areas with loose substrate, such as sandy beaches and dry mud or salt flats along the California coast. It forages for small crustaceans, marine worms, insects, and amphipods in the wet sand at the beach-surf interface. Nesting generally occurs between March 1 and September 15 each year. It constructs a nest by scraping a shallow depression into the substrate on broad open beaches or salt or dry mud flats. The average life span of a western snowy plover is estimated at 2.7 years, although records exist of a bird living 15 years (U.S. Navy 2010a).

The 32 miles of shoreline at NBVC SNI support a year-round population of western snowy plovers. The breeding population on NBVC SNI has ranged from 46 to 96 plovers, with a mean of 69.7 individuals since 2002 (U.S. Navy 2011). On May 18, 2010, 50 adults were recorded during the breeding season survey. The wintering population has ranged from 86 to 243 since 2003, with an average of 157.13 individuals. February 2010 surveys documented 99 individuals, the majority at Tender Beach. Areas of highest concentration are Tender Beach, Coast Guard Beach, west of Dutch Harbor to the west of the supply pier at Daytona Beach, and Sand Spit (U.S. Navy 2011).

The western snowy plover population at NBVC SNI is challenged by predation, loss of nests caused by wind, and encroachment of the increasing population of marine mammals on plover nesting habitat. Plovers appear to be establishing nests farther inland on coastal bluffs and terraces, possibly to avoid marine mammals. The recovery plan goal for NBVC SNI is 150 individuals (U.S. Navy 2011). NBVC SNI is exempt from critical habitat designation for the western snowy plover based on protections afforded by the Integrated Natural Resources Management Plan (INRMP) for NBVC SNI INRMP (U.S. Navy 2010a).

Daytona Beach and Coast Guard Beach contain potential western snowy plover nesting habitat. Daytona Beach has potential breeding and winter habitat for the western snowy plover, primarily west of the supply pier. The footprint of the Proposed Action would occur in an area approximately 0.92 acre in size at Daytona Beach. Historically, plovers have foraged and only infrequently nested in this action area. Daytona Beach is often inundated with waves, which reduces the suitability of the beach for plover nesting. Most documented nests occur at least 985 feet (300 meters) west of the proposed project area (U.S. Navy 2011). Since 1992, Navy biologists have observed two plover nests upland of Beach Road at the pier staging area and one nest on the beach 328 feet (100 meters) west of the project site (Tetra Tech 2011a).

Coast Guard Beach contains suitable plover nesting habitat based on nesting substrate and proximity to foraging opportunities on the beach. Navy biologists have observed plover nests in the back beach of the Coast Guard Beach action area and in the Former Borrow Pit area. Plovers regularly nest each year east of the action area near the RO plant (Tetra Tech 2011a). The footprint of the Proposed Action at Coast Guard Beach would occur in potential plover nesting habitat approximately 2.48 acres in size (1.38 acres on the beach and 1.10 acres at the Former Borrow Pit).

An increasing number of marine mammals that haul out on Coast Guard Beach may preclude larger numbers of plovers nesting on the beach. During a May 2011 survey, an NBVC biologist noted several hundred marine mammals, including elephant seals, harbor seals, and sea lions, hauled out in the action area (Tetra Tech 2011a).

A programmatic Biological Opinion addressing all activities on NBVC SNI was issued by the USFWS in 2001 (Biological Opinion for Activities on San Nicolas Island, California [5090 Ser 8G0000D/7284] [1-8-01-F-14]) (USFWS 2001). The Biological Opinion addresses impacts to federally listed species and their critical habitat by all on-going and reasonably foreseeable activities. The Biological Opinion specifically includes measures relating to barge landings at Daytona Beach.

Island Night Lizard

The USFWS listed the island night lizard as threatened in 1977 (42 FR 40682). No critical habitat has been designated for this species. The island night lizard is a medium-sized lizard endemic to Santa Barbara Island, San Clemente Island, and San Nicolas Island. Its dorsal coloration is highly variable and differs between islands; it ranges from pale ash gray and beige and shades of brown to varying amounts of black with patterns varying from uniform to mottled to striped (Bezy and others 1980, Fellers and Drost

1991). The island night lizard eats a wide variety of insects and spiders and a relatively large quantity of plant material relative to its size.

The island night lizard is slow-growing, late maturing, and long-lived with a low reproductive potential (Goldberg and Bezy 1974, Mautz 2001). The lizard begins breeding at 3 to 4 years of age, around March or April. Females give birth to live young around September and average 5.3 young per brood (Goldberg and Bezy 1974, Fellers and Drost 1991, Mautz 1993). The island night lizard population on NBVC SNI is estimated at 15,350 individuals and is generally distributed only over the eastern half where there is suitable shrub habitat (Fellers and others 1998). The western portion of NBVC SNI is dominated by sandy soils, grassland, grass-shrub, and dune communities that support few or no lizards (Fellers and others 1998; Tetra Tech 2011a).

The island night lizard prefers sheltered areas such as dense vegetation, loose rocks, or crevices in clay soils. They also inhabit debris piles left by humans that may simulate the protected structure of shrublands or rock crevices. Studies have found that appropriate vegetative cover can be a relative indicator of density (Fellers and Drost 1991, Mautz 2001). The lowest densities of widely scattered individuals at NBVC SNI are found in grasslands (0.002 lizards per square meter); increased densities (0.25 per square meter) occur in mixed shrub and cactus habitats; boxthorn (*Lycium californicum*) supports higher densities (medium) (0.32 per square meter); and beach boulder provides the highest densities on the island (0.40 per square meter) (Fellers and others 1998).

A survey of the action area conducted in June 2011 confirmed the mixed densities detailed in the 1998 report (Fellers and others 1998). The action area encompasses a range of low- to high-density island night lizard habitat, as detailed in Table 3-20 and Figure 3-2. Vegetation communities in the action area include coreopsis, coastal scrub, grassland, beach, and barren areas (Figure 3-1). The survey was conducted to assess the quality of lizard habitat and estimate their densities within the action area footprint. Surveys were not conducted in or around culverts other than those culverts in high-density habitat along Owen Road, north of Nicktown. Additionally, the airfield was not surveyed in June 2011 for safety and security reasons. No survey records exist for the perimeter of the airfield. However, a site visit at the airfield in August 2011 with a Navy biologist confirmed the previously mapped density estimate of "low" (Fellers and others 1998).

Table 3-20: Island Night Lizard Habitat within the Proposed Action Footprint (Acres)

Proposed Action	Area or Length of Proposed Action Footprint	Potential Lizard Habitat	Habitat Quality
Phase I Roads[1]	5.65 miles (6.16 acres)	1.16 acre	Low
Phase I Culverts	0.21 acre	0.21 acre	Low
Phase II Roads[2]	6.8 miles (7.03 acres)	0.40 acre	Mix of low to medium
Phase II Culverts[3]	0.28 acre	0.16 acre	Mix of low to high
Airfield Shoulder Repair[4]	23 acres	11 acres	Low
Airfield Culvert[5]	1.0 acre	0.75 acre	Low to medium
Airfield Staging[6]	9 acres	4.5 acres	Low
Coast Guard Beach Access Road[7]	0.38 acre	0 acre	NA
Former Borrow Pit and Asphalt Batch Plant Site	3.32 acres	0.00002 acre (0.093 m^2)	Low to medium
Coast Guard Beach	Beach habitat unsuitable for lizards		
Daytona Beach	Beach habitat unsuitable for lizards		

Notes:

1 Potential lizard habitat within the Phase I road repair footprint excludes the 2.46 miles of road repair at the western section of the island because lizards do not occur in that area.

2 Phase II road repairs in the western portion of the island occur in areas largely devoid of lizards. No impacts are expected. Phase II repairs that occur at north Owen Road (1.1 miles) in high-quality habitat will remain within the roadbed and shoulder footprint. Acreage was calculated on a 3-foot disturbance due to road widening.

3 Phase II culvert repairs assume five culverts are in potential lizard habitat: three along north Owen Road and two at the northwest end of Shannon Road. Of these culverts, two are major repairs (2,000 square feet each).

4 Airfield shoulder repair equals 23 acres; however, lizards are not expected within the interior of the airfield. Potential lizard habitat is considered within the 11-acre outer perimeter.

5 Airfield culvert repairs will occur in 0.75 acre of potential lizard habitat; the other 0.25 acre of repairs is in the interior of the airfield and would have no effects on lizard habitat.

6 Three airfield staging areas are in the infield with no impacts to lizards, and three would be located at the northern perimeter.

7 Coast Guard Beach Access road is expected to have little to no effect on lizards because the grading will remain within the existing roadway.

Sources: Fellers and Drost 2011; Tetra Tech 2011a.

The sections of roads to be repaired in grassland habitat atop the mesa support very few lizards (Tetra Tech 2011a, U.S. Navy 2010a, Fellers and others 1998). Scattered shrub occurrences may provide isolated areas of improved cover for lizards (Tetra Tech 2011a). Culverts that occur in the action area along the northwest end of Shannon Road may support higher densities than expected, depending on the type of vegetative cover present (Tetra Tech 2011a). In this area, a small lizard population is known to

occur in the vicinity of two culverts to be repaired (Figure 3-2). A low-density multiplier would represent the number of lizards expected to be affected by culvert repairs in that area.

Excluding the surveyed culverts at north Owen Road and the aforementioned Shannon Road culverts, densities of lizards in culverts are based on densities of the surrounding habitats (Figure 3-2).

Neither beaches nor dunes support island night lizards. The coastal scrub that occurs along Beach Road from Daytona Beach to the asphalt batch plant site and along the ascent to the mesa supports island night lizards in moderate densities (0.32 per square meter) with scattered areas of high densities (0.40 square meter) (Fellers and others 1998).

Coastal scrub vegetation along the perimeter of the asphalt batch plant supports a moderate to high density of lizards (0.20 to 0.30 per square meter) (Fellers and Drost 2011; Fellers and others 1998). Coastal scrub that occurs at the southeastern edge of the plant site and along the southern section of the access road provides habitat for lizards at a 0.25 per square meter density (Fellers and Drost 2011). The Former Borrow Pit between the asphalt batch plant and Coast Guard Beach provides no suitable habitat for lizards.

3.2.1.5 Non-Federally Listed Rare Wildlife Species

Non-federally listed rare wildlife species are known to occur or have potential to occur on NBVC SNI and some of them are afforded federal protections under the MBTA and MMPA. Species discussed below include avian species, the San Nicolas Island fox, and marine mammals.

Avian Species

Non-federally listed seabird species use San Nicolas Island for breeding and roosting habitat. NBVC SNI contains breeding habitat for the western gull (*Larus occidentalis*), Brandt's cormorant (*Phalacrocorax penicillatus*), and black oystercatcher (*Haematopus bachmani*). The Brandt's cormorant colony on NBVC SNI is the fourth largest in the world, and the second largest in southern California, with some years recorded as the largest. The western gull colony on NBVC SNI is the third largest in southern California. Cormorants and gulls seasonally form large colonies along the periphery of San Nicolas Island, but occur primarily at the western tip of the island (U.S. Navy 2010a). No seabird nesting sites occur within the Proposed Action area.

NBVC SNI beaches, wetlands and coastal dunes support a variety of winter and summer visiting shorebirds including willets (*Tringa semipalmata*), yellowlegs (*Tringa flavipes*), whimbrels (*Numenius phaeopus*), curlews (*Numenius americanus*), godwits (*Limosa spp*.), and turnstones (*Arenaria spp*.), among others. Several species of plovers also occur at NBVC SNI, including the western snowy plover, as previously discussed. The Proposed Action area contains suitable habitat at Daytona and Coast Guard Beaches for nesting and roosting shorebirds (U.S. Navy 2010a).

Resident landbirds (Passerines) that may occur within the Proposed Action footprint include three Channel Island endemics: the San Nicolas Island horned lark (*Eremophila alpestris insularis*), the dusky orange-crowned warbler (*Vermivora celata sordida*), and the San Clemente house finch (*Carpodacus mexicanus clementae*). Occurrences of these species are ranked in the *San Nicolas Island Integrated Natural Resources Management Plan* as abundant, common, uncommon or rare (U.S. Navy 2010a). The horned lark is an abundant resident species at NBVC SNI, and most sections of proposed road repairs occur in suitable breeding and forage habitat. The horned lark is ground-dwelling and prefers areas of short vegetation interspersed with bare ground. The dusky orange-crowned warbler is associated with tall vegetation and, as such, is most common in giant coreopsis habitat, but can occur in deep drainages. This species is a summer visitor to NBVC SNI and occurs in abundance. The house finch is also abundant on NBVC SNI and could be expected to occur in the footprint of the Proposed Action; it is found in both developed and natural areas across the island (U.S. Navy 2010a).

Other resident species include the western meadowlark (*Sturnella neglecta*), rock wren (*Salpinctes obsoletus*), and northern mockingbird (*Mimus polyglottos*). Of these species, the meadowlark could occur within the Proposed Action area and is also abundant. They breed within grassland and coastal scrub at NBVC SNI, avoiding bare ground or areas with tall vegetation (U.S. Navy 2010a).

State species of special concern include the state ranked "imperiled" (S2) western burrowing owl (*Athene cunicularia hypugea*), an uncommon winter visitor, and the state sensitive and fully protected American peregrine falcon (*Falco peregrinus anatum*), also a common winter visitor. These species use the island for winter roosting, dispersal, or stop-over during times of migration (U.S. Navy 2010a). The species noted above and most other avian species occurring on San Nicolas Island are protected under the MBTA.

San Nicolas Island Fox

The San Nicolas Island fox (*Urocyon littoralis dickeyi*) was listed as state threatened in 1971 and warrants special considerations during project planning (U.S. Navy 2010a). Island foxes are endemic to the region,

restricted to the Channel Islands; a separate subspecies is found on each island except Anacapa and Santa Barbara (U.S. Navy 2010a). In 2004, the USFWS listed the San Miguel Island Fox (*U. l. littoralis*), Santa Catalina Island Fox (*U. l. catalinae*), Santa Rosa Island Fox (*U. l. santarosae*), and Santa Cruz Island Fox (*U. l. santacruzae*) as federally endangered based on recent precipitous population declines and high risk of extinction (USFWS 2004). The San Clemente Island Fox (*U. l. clementae*) and San Nicolas Island Fox are not federally listed but remain protected under California law as state threatened.

San Nicolas Island foxes occur in wide distribution across all vegetation communities at NBVC SNI. The 2005 population estimate of adult island foxes was 402, with population records ranging between 381 and 614 for surveys conducted in 2000 through 2004 (U.S. Navy 2010b). The 2010 survey recorded more than 500 individuals (U.S. Navy 2010a).

Island foxes are omnivorous, foraging on insects, vegetation, mice, and bird eggs. They are generally monogamous and breed annually, with litter sizes ranging from one to five pups. Adult pairs are together starting in January, mate in February to early March, and pups are born from early March through early May (U.S. Navy 2010a). Pups emerge from the den at around 1 month of age and continue to require parental care for an extended period of time, extending into the fall (Tetra Tech 2011b).

San Nicolas Island foxes could be expected to occur in all areas of the Proposed Action and have been regularly documented inhabiting culverts (Tetra Tech 2011c).

Marine Mammals

Three species of pinnipeds regularly occur at NBVC SNI and in the Proposed Action footprint and are discussed in more detail below. Northern elephant seals (*Mirounga angustirostris*), California sea lion (*Zalophus californianus*), and harbor seal (*Phoca vitulina richardsi*) regularly haul out at Coast Guard and Daytona Beach during pupping, nursing, and molting, as detailed below (U.S. Navy 2010a). These species are protected under the MMPA and are not listed under the ESA.

Cetaceans are not addressed in this EA because they do not occupy NBVC SNI beaches nor do they commonly occur in the inshore waters where barge operations take place.

A small translocated population of approximately 50 southern sea otters (*Enhydra lutris nereis*) occurs on NBVC SNI (Tetra Tech 2011d). Historically, these animals prefer the northwestern shore (Rathbun and others 2000). They primarily forage in kelp habitat, feeding on abalone, sea urchins, and rock crabs.

They prefer rocky shoreline, kelp beds, and water depths of approximately 66 feet (U.S. Navy 2010a). The Proposed Action areas do not support their preferred habitat. During surveys conducted four times a year from 2005 to 2010, only one individual was sighted within the Proposed Action footprint, in June 2008 (Tetra Tech 2011d). They will not be discussed further in this document because southern sea otters are not expected to occur within the Proposed Action footprint. They are protected under the MMPA.

The federally threatened Guadalupe fur seal (*Arctocephalus townsendi*) does not breed at NBVC SNI and only individual fur seals have been observed intermittently over the last few years hauled out along the southwest portion of the coast, most recently in 2007 (U.S. Navy 2010a). Records indicate they are not likely to occur on the eastern portion of NBVC SNI, at the Coast Guard or Daytona Beach Proposed Action areas. Because the Guadalupe fur seal is not expected to occur within the Proposed Action footprint, it will not be discussed further.

NBVC SNI is considered an important resource area by NMFS because of the large pinniped population it supports, and the agency is an active partner in the marine mammal program (U.S. Navy 2010a). The NMFS Southwest Fisheries Science Center is conducting a long-term study of the food habits of the California sea lion on the island, as well as other ancillary research. As part of a cooperative effort, the Navy and NMFS conduct annual aerial surveys of pinnipeds to determine relative spatial and seasonal distribution and abundance (U.S. Navy 2010b).

Northern elephant seal (*Mirounga angustirostris*): NBVC SNI is the second largest elephant seal rookery and hauling ground in the Southern California Bight (Lowry 2002). They prefer gradually sloping, sandy beaches. If sandy beaches are not available, they will haul out on pebbles, boulders, or rocky shores. Each year, approximately 30 percent (23,000 individuals) of the elephant seals hauling out on all California shorelines occur at NBVC SNI. Northern elephant seals haul out on both Daytona Beach and Coast Guard Beach on NBVC SNI.

In general, northern elephant seals primarily breed and give birth on offshore islands, including the Channel Islands, from December to March (Stewart and Huber 1993; Stewart and others 1994); adults return between March and August to molt. The elephant seal breeding season peaks in late January to early February and molting peaks in late April to early May on NBVC SNI (Odell 1974; Stewart and Yochem 1984). They haul out at the barge landing areas from December through mid-May on Daytona Beach and Coast Guard Beach, with some early arrivals recorded in mid- to late November. This time frame encompasses the breeding season and female and juvenile molting period, with pups remaining

through April (Smith 2005). After they spend time at sea to feed, females and juveniles haul out between March and May, with peak occurrences in April. Adult males tend to haul out and molt between June and August, with peak numbers in July.

In the late 1980s, elephant seals began to use west Daytona Beach (outside of the beach landing area) as a pupping area and have gradually moved eastward along the beach over the years. In 1988, 144 elephant seal pups were born at the west end of Daytona Beach. This number has increased steadily since then, reaching a total of 1,000 pups born at Daytona Beach in 1995 (Lowry and others 1996). In 2002, the estimated current number of individuals at Daytona Beach was more than 2,000 (U.S. Navy 2002a).

A total of 231 northern elephant seals were present at Coast Guard Beach in 2005 during repair of the saltwater intake wells for the RO water system. In addition, from January through December 2006, a total of 79 northern elephant seals were present by the U.S. Navy during three projects associated with the operation of the RO water system (NMFS 2006). This information is the most current regarding the number of elephant seals observed at Coast Guard Beach.

The California elephant seal stock is rapidly growing, and was estimated at approximately 124,000 seals in 2005 (Carretta and others 2010). From 1988 to 2000, birth rates at NBVC SNI increased at an average annual rate of 7.3 percent (Lowry 2002). Primary sources of mortality for northern elephant seals are entanglement in fishing gear and other debris, boat collisions, power plant entrainment, and gunshot wounds.

California sea lion (*Zalophus californianus*): The California sea lion is the most common pinniped at NBVC SNI. They haul out at many sites along southern and western NBVC SNI, including Daytona Beach and Coast Guard Beach. They haul out on NBVC SNI beaches to mate and pup beginning in late May and continuing through July. Females nurse their pups for 8 months, alternating between nursing the pups on land and foraging at sea. During the molting period, they haul out in September, and smaller numbers of females and juveniles haul out intermittently throughout the year.

The NBVC SNI population has ranged from 43,000 to 57,000 individuals since 2001. Pup production between 2003 and 2008 has ranged from 25,000 to 29,000 individuals (U.S. Navy 2010a). Large numbers of sea lions haul out and pup one-half mile west of the barge landing site at Daytona Beach (U.S. Navy 2002a). Mixed age groups intermittently haul out in the vicinity of the Daytona Beach barge landing area throughout the year, and bachelor bulls haul out at the barge landing site during June and

July (Smith 2005). In 2002, the number of California sea lions on Daytona Beach was estimated to be about 500 (U.S. Navy 2002a).

California sea lions currently haul out on Coast Guard beach from April through June but have not pupped there since 2002 (U.S. Navy 2002a). In 2005, a total of 133 California sea lions were present at Coast Guard Beach during repair of the saltwater intake wells for the RO water system. From January through December 2006, a total of 468 California sea lions were present during three projects associated with operation of the RO water system (NMFS 2006). They are most abundant in June and July, during the height of the pupping season (although they have not pupped there recently) (Stewart and Yochem 1984). They also haul out during the molting period in September, and smaller numbers of females and juveniles haul out throughout the year.

The minimum population size of the U.S. stock, which includes the Channel Islands, is 141,842 (Carretta and others 2010). Based on trends in pup counts (1975 to 2005), the population appears to be increasing. Primary causes of California sea lion mortality are entanglement in gillnets and other debris, boat collisions, entrainment in power plants, and gunshot wounds (Carretta and others 2011).

Harbor seal (*Phoca vitulina richardsi*): Harbor seal haul out sites are distributed along mainland California and on offshore islands, including the Channel Islands. Pupping occurs on beaches from late February through April on NBVC SNI, with nursing of pups extending into May. Harbor seals are also abundant in late May and early June while they are molting, and are least abundant in winter (Stewart and Yochem 1984). Most harbor seals on NBVC SNI haul out at several specific, traditionally used sandy, cobble, and gravel beaches. A few seals haul out at onshore and offshore ledges and reefs, mostly during the pupping and molting season. Harbor seals are very rare at the barge landing area at Daytona Beach (Smith 2005). They occasionally haul out at the far west end of Coast Guard Beach and occasionally in the vicinity of the Proposed Action (U.S. Navy 2002a).

Peak counts on NBVC SNI are about 450 seals, representing about 2 percent of the California stock. The California stock is estimated to number 34,233 seals (Carretta and others 2011). Primary causes of harbor seal mortality are entanglement in gillnets and other debris, boat collisions, entrainment in power plants, and gunshot wounds.

3.2.1.6 Marine Communities

San Nicolas Island supports a marine community consisting of a combination of northern and southern subtidal species, a result of the island's geographic location offshore of the mainland. It is far enough offshore to receive cold waters from the California Current, yet southerly enough to receive warm water from the California Countercurrent. The geologic composition of the marine habitat also affects the distribution and types of marine species at NBVC SNI. NBVC SNI's shoreline consists of approximately 61 percent bedrock and 33 percent sandy beach. The small number of coves and distance from the wave shadow of the other islands also affects species composition: species that typically occur in calm waters are rare or absent from NBVC SNI waters (U.S. Navy 2002b).

The majority of the intertidal and subtidal habitat at NBVC SNI consists of rocky reef. Rocky reef provides attachment strata for kelp and other macroalgae that support a diversity of fish and invertebrate assemblages. The proposed barge beach landing areas at Coast Guard Beach and Daytona Beach consist of sandy beach and soft bottom habitat, which typically has fewer species assemblages compared with rocky habitats (CMLPAI 2009). The subtidal substrate at these sites is unvegetated soft sandy bottom. The ocean floor off Daytona Beach is absent of any observed rock formations. The beach has a steep gradient and receives a large amount of wave energy from incoming swells that deposit large amounts of beach sand on the ocean floor. East of the Daytona Beach proposed landing site are rock outcrops.

The ocean floor at Coast Guard Beach contains a shallow tidal area and a gradual slope to the sea. Strong longshore currents produce a large amount of sand transport that enables the ocean floor to remain sandy without any known reefs or rock outcroppings.

Inland of the intertidal zone, associated with dune complexes, are globose dune beetles (*Coelus globosus*), ranked by the California Department of Fish and Game (CDFG) as "critically imperiled." This species of beetle inhabits foredunes and sand hummocks, burrowing into the sand. It is most often found underneath dune vegetation. The footprint of the Proposed Action at both Daytona Beach and Coast Guard Beach lacks dune morphology and vegetation and, as such, is not expected to support large numbers of dune beetles. No dune beetles were observed during the field reconnaissance of Coast Guard Beach in August 2011. Daytona Beach had marine mammals hauled out at the time of visit, so a close investigation of beach sand was not conducted.

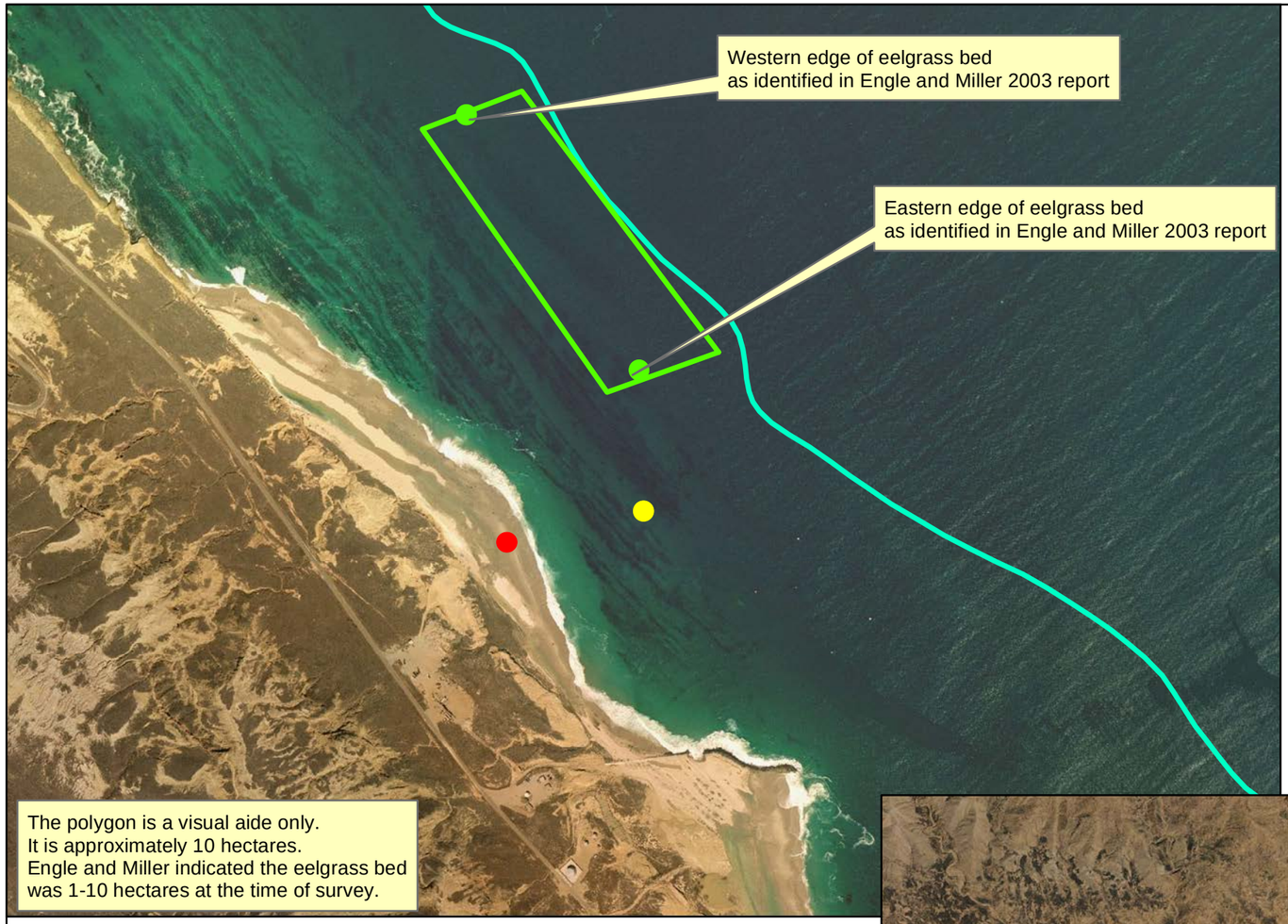
Sandy beaches are extremely dynamic habitats and change seasonally in response to wave conditions. They provide foraging, resting, and breeding habitat for marine mammals, as described above, and a

variety of shorebirds, including the western snowy plover and black-bellied plover (*Pluvialis squatarola*), willet, whimbrel, gulls (Family Laridae), and others. There are no known sea turtle nesting beaches at NBVC SNI (U.S. Navy 2010a).

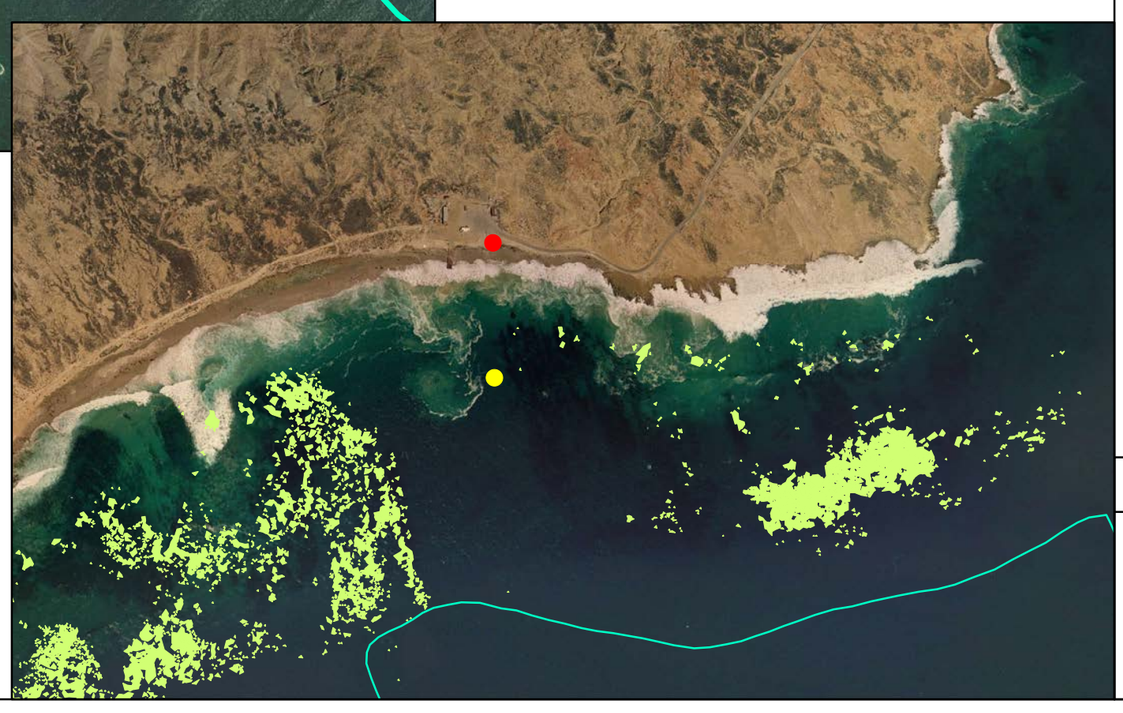
Marine Flora

Kelp beds (*Macrocystis pyrifera*) are present in the vicinity of the Proposed Action areas off Daytona Beach and Coast Guard Beach, as shown in Figure 3-3. The distribution and abundance of kelp change in response to storms and intense foraging episodes; the precise locations are not fixed, but the general areas that support kelp are known (Pacific Fishery Management Council [PFMC] 2008). Because of the sandy substrate within the action area at Coast Guard and Daytona Beach, kelp and other macroalgal cover is relatively low compared with the rest of the coast, which largely consists of rocky reef.

An eelgrass (*Zostera pacifica*) bed, the only known population at NBVC SNI, is located off Coast Guard Beach, but outside of the project area, also depicted in Figure 3-3 (Engle and Miller 2003). Eelgrass is an important refuge and foraging, breeding, and nursery habitat for many juvenile and adult fish species, with fish abundance and diversity nearly twice the number commonly recorded in unvegetated habitats (CMLPAI 2009). Eelgrass provides stability to surface sediments, supplying shelter and nutrients for invertebrates. They are sensitive to periods of increased sedimentation, coastal runoff, and pollution. An eelgrass survey conducted in August 2002 recorded the coordinates of the east and west edges and gave a range of 1 to 10 hectares eelgrass cover, at a depth of 45 to 55 feet below mean sea level (Engle and Miller 2003; Junak 2008).



Coast Guard Beach



Daytona Beach

Legend

- Eelgrass (Source: Engle and Miller 2003)
- Proposed Barge Beach Landing Locations
- Approximate Shipping Barge Anchorage (650 ft from shore)
- 10-Fathom Depth
- 2010 Kelp Extent (Source: NAVAIR 2010)

N

0.1 0.05 0 0.1 Miles

Naval Base Ventura County
San Nicolas Island, California

FIGURE 3-3

DAYTONA BEACH & COAST GUARD BEACH MARINE FLORA

Fig3-3_Marine Flora.mxd; ALortie TTEMI-BLDR
Data Source: Tetra Tech EMI GIS databases & Fellers et.al 1998

Benthic Invertebrates

Sandy beach habitat is dynamic and can be easily disturbed by storm events or tidal currents. The relatively unstable environment and lack of strata for attachment by benthic organisms in the intertidal and subtidal zones results in fewer organisms found in sandy bottom habitat than in rocky intertidal or vegetated habitats (CMLPAI 2009). Additionally, Daytona Beach and Coast Guard Beach generally receive a smaller amount of marine debris and macrophyte wrack compared with the beaches at the northwestern side of the island that face prevailing winds and swells. Studies conducted at other Channel Islands and the Southern California mainland coast have correlated a direct relationship between amphipod abundance and macrophyte wrack cover (Dugan and others 2000).

Dominant taxa of sandy beaches are mobile infauna that can bury in the sand for protection from wave action and predators and include hard shelled (clams and crabs) and soft bodied (worms). Qualitative surveys conducted in the intertidal and subtidal zones at Daytona Beach and Coast Guard Beach have documented the following invertebrate fauna: sand crabs (*Emerita analoga* and *Blepharipoda occidentalis*) (Daytona Beach only), bloodworms (*Euzonus mucronata*), beach hopper amphipods (*Megalorchestia* spp.), isopods (*Excirolana chiltoni*), polychaete worms, sea stars (*Pisaster* sp.), spiny mole crabs (*Blepharipoda occidentalis*), purple olive snails (*Olivella biplicata*), and sand dollars (*Dendraster excentricus*) (U.S. Navy 2002b, 2010a).

Fish and Essential Fish Habitat (EFH)

Many marine fish that are federally managed by the PFMC and NMFS rely on shallow coastal habitats during part of their lives. The Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265; 16 U.S.C. 1801-1884), as amended (Public Law. 109-479), provides for conservation and management of fishery resources. NMFS is given responsibility for identifying EFH for all federally managed marine and anadromous fish species. The PFMC and NMFS are responsible for designating EFH for each life stage of federally managed marine fish species.

The PFMC prepared Fishery Management Plans (FMP) for Pacific Coast Groundfish (PFMC 2008), Coastal Pelagic Species (PFMC 1998), and Highly Migratory Species (PFMC 2011) that describe EFH for dozens of federally managed species. The Proposed Action (aggregate delivery and offload) occurs within EFH designated waters.

Categories of groundfish EFH that could be affected by the Proposed Action include canopy kelp and seagrasses. In addition to providing EFH for managed species, the nearshore waters and substrates around NBVC SNI provide habitats that support various economically important marine fishery species such as Pacific halibut (*Paralichthys californicus*), white seabass (*Atractoscion nobilis*), lobster (*Panulirus interruptus*), and sea urchins (*Strongylocentrotus* spp.) (U.S. Navy 2010a). Forage species that serve as prey for other fisheries managed under the Magnuson-Stevens Act are also considered important components of EFH.

Distributional data for offshore waters of NBVC SNI indicate that at least 27 species of managed groundfish may occur in waters that fit the description of EFH, including roundfish, rockfishes, skates and sharks, and flatfish. Four finfish (Pacific sardine [*Sardinops sagax caerulea*], Pacific [chub] mackerel [*Scomber japonicas*], northern anchovy [*Engraulis mordax*], and jack mackerel [*Trachurus symmetricus*]) and the market squid (*Loligo opalescens*) are managed as a group of coastal migratory pelagic species because they (1) occur in the same habitat (surface waters above the thermocline in the upper mixed layer of the ocean); (2) have similar life histories; and (3) require similar habitat elements (PFMC 1998). Two species of krill are also managed as coastal pelagic. All of these species could occur in the Proposed Action area. Most of the highly migratory species managed by PFMC prefer deeper waters than are found in the Proposed Action area. However, some highly migratory species could occur in the vicinity, including common thresher shark (*Alopias vulpinus*) and dolphinfish (*Coryphaena hippurus*).

EFH for coastal pelagic and highly migratory species is limited to the water column. Habitats identified as EFH for groundfish include canopy kelp, seagrasses, and rocky reefs. The Proposed Action at Daytona Beach and Coast Guard Beach are adjacent to canopy kelp and an eelgrass bed, as described above.

3.2.1.7 Waters of the United States (WOUS)

The USACE delineated jurisdictional wetlands at NBVC SNI in 2007, and most recently in November 2011 (report in progress [Tetra Tech 2012a]). The 2007 delineated wetlands are depicted in Figure 3-4. The 2007 delineation documented a total of 0.98 acre of wetlands at NBVC SNI (USACE 2007). Jurisdictional wetlands on NBVC SNI include riparian and coastal marsh habitat (Figure 3-4). Culvert repairs that occur in drainage ditches with connection to the ocean may be considered jurisdictional non-tidal WOUS and, therefore, may be subject to Sections 404 and 401 of the Clean Water Act.

Tufts Road

Shannon Road

Owen Road

Nicktown

Jackson Highway

Monroe Drive

Coast Guard Beach

Daytona Beach

Legend

- Proposed Beaches
- Phase I Road Repairs
- Phase II Road Repairs
- Roads
- Airfield
- SNI Wetlands

(Source: USACE 2007)

0.4 0.2 0 0.4 Miles

Naval Base Ventura County
San Nicolas Island, California

FIGURE 3-4

SAN NICOLAS ISLAND JURISDICTIONAL WETLANDS

Fig3-4SNI_Wetlands.mxd; ALortie TTEMI-BLDR
Data Source: Tetra Tech EMI GIS databases

These drainages are intermittent stream channels that are dry for most of the year and carry only surface flow from storm events. Most of these channels are deeply eroded and lack characteristic wetland vegetation. Jurisdictional wetlands near the project area are limited to the Humphrey Sump seep at the west end of the island, west of Shannon Road; but this area is not within the area of potential disturbance of the Proposed Action. Non-jurisdictional wetland habitat includes a vernal pool in the vicinity of the airfield, identified in Figure 3-1; however, the vernal pool is outside the Proposed Action area. Potential WOUS within the Proposed Action footprint include three of the eight culvert repairs in Phase I, and up to eight culvert repairs in Phase II. Their significant nexus to the Pacific Ocean was not determined during the November 2011 field visit (Tetra Tech 2012b). Significant nexus determinations would be made during the Section 404 permitting process. The culvert at the airfield is not considered WOUS, as it only drains the slope and has no connection with a traditional navigable waterway (Tetra Tech 2012a, 2012b).

3.2.2 Environmental Consequences of the Proposed Action

Vegetation Communities

Potential long-term impacts include the loss of non-sensitive vegetation on the road shoulders from widening the asphalt footprint along road repairs. Some sections of road shoulders are vegetated with either grasses or coastal scrub species that would be lost to the width of new paved roads in some sections of road repairs. However, not all segments of road repair require widening of paved surfaces. The calculations presented in Table 3-21 below assume the entire length of road repairs would result in widening paved surfaces from 22 to 25 feet. The impacts presented are considered the worst-case scenario. Long-term impacts are less than significant, when the overestimation and limited extent of impact along roads are considered.

Long-term impacts to non-sensitive vegetation would occur at the airfield as a result of extending the paved shoulders to a new 25-foot width. A total of 23 acres of grassland habitat would be removed permanently (Figure 3-1). A large portion of the grassland, in the area of impact at the airfield, consists of monotypic stands of non-native wild rye. This impact would be less than significant because these areas have been disturbed by past mowing or have been disturbed by original construction of the airfield.

Short-term impacts include the temporary loss of vegetation associated with culvert repairs, and shoulder repair and maintenance. The following assumptions were made in calculating short-term impacts:

(1) Road shoulders along the entire length of road repair are currently mowed to an 8-foot width, which would allow for passage of a 5-foot skip loader on either side of the road shoulder, to smooth the new shoulder. Because of the current mowing regime, no new impacts (trampling of native vegetation) would result from the skip loader. Under the Proposed Action, the road would be widened from 22 to 25 feet, so impacts to vegetation would occur at a width of 1.5 feet on each side of the road resulting from the continued mowing regime along the new edge of asphalt. Short-term impacts are calculated on a 1.5-foot (3 feet total) impact to vegetation. An exception is the Phase II north Owen Road segment, which is not mowed, and where a skip loader will not drive along the edge. This section is excluded from short-term impact calculations. Short-term impacts are likely overestimates because not all sections of road repair require widening, and not all sections have room for maneuverability of a mower or skip loader. The impacts presented are considered the worst-case scenario.

(2) Culvert repairs may result in 500 square feet (sq. ft.) of short-term impacts on both upstream and downstream sides of the road (1,000 sq. ft. total), except for two culvert repairs on Monroe Drive, one on Shannon Road, and one on north Owen Road, each of which may result in 1,000 sq. ft. of short-term impacts on both upstream and downstream sides of the road (2,000 sq. ft. total). Less than significant long-term impacts would occur on upstream and downstream sides of the road, from replacing old culvert systems with new concrete dissipation systems, wingwalls and headwalls, which in some cases may result in a slighter larger culvert footprint within the drainages. (3) Staging locations for road repair work would use existing dirt or paved pullouts and paved access areas identified on Figure 2-1.

(4) Six 1.5-acre airfield staging areas would be located at the airfield (three in the interior of the airfield, in the area of lime-treated and mowed grasses, and three at the northern perimeter). This acreage may also be an overestimation if material is staged within the airfield footprint.

Table 3-21: Areas of Plant Communities and Cover Types Affected within the Proposed Action Footprint

Plant Communities and Other Cover Types	Area within Proposed Action (Linear feet)	Potential Maximum Area of Disturbance (Acres)	
		Long-Term	Short-Term
Grassland	Airfield shoulders	23	0
	Airfield culvert	0	1.0
	Airfield staging	0	9
	Roads widening	2.42	0
	Roads shoulders	0	1.21
	TOTAL	**25.42 acres**	**11.21 acres**
Coastal Scrub	Roads widening	4.58	0
	Roads shoulders	0	2.29
	Roads culverts	0	0.42
	Coast Guard Beach Access Road	0.05	0
	TOTAL	**4.63 acres**	**2.71 acres**
Coreopsis	Roads widening	0.90	0
	Roads shoulders	0	0.22
	Roads culverts	0	0.069 acre
	TOTAL	**0.90 acre**	**0.289 acre**
Inland Dune	Roads widening	0.05	0
	Roads shoulders	0	0.025
	TOTAL	**0.05 acre**	**0.025 acre**
Riparian	Roads widening	0.019	0
	Roads shoulders	0	0.009
	TOTAL	**0.019 acre**	**0.009 acre**
Beach	Surface grading	**0**	**2.30 acres**

Table 3-21 Areas of Plant Communities and Cover Types Affected within the Proposed Action Footprint (Cont.)

Other Cover Types	Area within Proposed Action (Linear feet)	Potential Maximum Area of Disturbance (Acres)	
		Long-Term	Short-Term
Barren	Former Borrow Pit	0	1.10
	Asphalt Batch Plant site	0	2.22
	Coast Guard Beach Access Road	0	0.33
	Roads widening	0.184	0
	Roads shoulders	0	0.092
	TOTAL	**0.184 acre**	**3.742 acres**
Developed	Roads widening	0.90	0
	Roads shoulders	0	0.45
	TOTAL	**0.90 acre**	**0.45 acre**

Notes: No direct impacts are expected to the vernal pool adjacent the airfield. Indirect impacts could occur as described below.
Culverts occurring along Monroe Drive are mapped as grassland, but were observed to contain coastal scrub vegetation during the August 2011 site visit and as such are included in the coastal scrub impacts.
Negligible, less than significant long term impacts may occur from culvert repairs, due to replacing existing culvert systems with new concrete dissipation systems, wingwalls, and headwalls, which in some cases may be slightly larger than existing culvert footprints.

As displayed in Table 3-21 above, the majority of impacts to vegetation would occur in grassland at the airfield as a result of new 25-foot paved shoulders. A large portion of the grassland, in the area of impact at the airfield, consists of monotypic stands of non-native wild rye. Airfield staging would incur short-term impacts in areas dominated by non-natives and would be restored with native species at project completion. As a result, short-term impacts to vegetation would be less than significant.

Impacts to vegetation communities adjacent to the Proposed Action footprint could occur from the spread and establishment of invasive seed or plant matter from construction equipment. The source of invasive species could be transported from the mainland, or from within the island, from one project area to another. Indirect impacts from adjusting the width of the current mowing regime could occur by distributing invasive seeds that may collect on the mowing equipment farther into natural areas along roadsides. Invasive plants are a growing problem at NBVC SNI, and the Navy biologist has observed an increase in weed cover along roadsides over the years. The impacts of spreading invasive plants results in reduced habitat quality for native flora and fauna. Minimization measures described in Chapter 2 include

weed treatment throughout all areas of the Proposed Action footprint quarterly for a period of 2 years after project completion.

Temporary indirect impacts may occur from construction and include potential effects from dust and sediment from runoff onto native species. However, dust and erosion control measures implemented in minimization measures AIR-1 and SWPPP-1 would ensure that impacts are less than significant.

Implementation of minimization measures BIO-2, BIO-4, BIO-8, BIO-15, BIO-16, VEG-1 and -2, AIR-1, and SWPPP-1 would reduce short- and long-term impacts to vegetation communities to less than significant levels. Therefore, under the Proposed Action, there would be no significant impacts to vegetation communities.

Federally Listed Plant Species

No federally listed plant species are known to occur on NBVC SNI. Therefore, no impacts to federally listed plant species would occur from the Proposed Action.

Non-Federally Listed Rare Plant Species

Direct short-term impacts could occur to plant species on the CNPS California Rare Plant Rank. Eight species are known to occur within the Proposed Action area: two were observed during the field reconnaissance in August 2011. Species observed in August 2011, and those with a probability of "high" as displayed in Table 3-18 are described below. Other species with moderate probability could also occur in the Proposed Action footprint and are described below.

Island tarplant, a perennial, was observed growing beyond the 25-foot zone of shoulder repair at the airfield. Rare plant records indicate that it also occurs in the vicinity of Shannon Road and Tufts Road, and its occurrence at NBVC SNI is ranked "abundant" (Junak 2003; U.S. Navy 2010a).

Also at the airfield and scattered along road shoulders, vernal barley (*Hordeum intercedens*), an annual grass, is common, occurring on flats and depressions (Junak 2003). Road repairs at the western half of the island were observed to support island morning-glory, a perennial. Distribution of this species was observed beyond the footprint of the Proposed Action for road shoulder repairs. Trask's locoweed (*Astragalus traskiae*), a perennial, is common at the far west of Jackson Highway, below the mesa (Junak and others 1995; Junak 2003). Rare plant records indicate its occurrence at NBVC SNI is ranked "abundant" (Junak 2003; U.S. Navy 2010a). San Nicolas Island malacothrix (*Malacothrix foliosa* ssp.

polycephala) is an annual species that occurs on sandy sites in coastal scrub habitat and is abundant. Dunedelion (*Malacothrix incana*) is found on sandy sites, dunes, terraces, and flats and is common at NBVC SNI (Junak 2008).

Long-term impacts would occur to species growing at the edge of the paved surface in areas of the roads that require widening. Because of the current mowing regime, it is unlikely that rare plants are a common occurrence at the asphalt edge. As a result, long-term impacts to rare plants would be less than significant.

Short-term impacts could occur from culvert repairs and shoulder repair and maintenance. Indirect impacts could occur from the spread of invasive plants, as described above for vegetation communities. However, implementation of minimization measures BIO-2, BIO-4, BIO-8, BIO-15, BIO-16, VEG-1 and -2, and SWPPP-1 would reduce impacts to rare plant species to less than significant levels. Therefore, implementation of the Proposed Action would have no significant impact to non-federally listed rare plant species.

Federally Listed Wildlife Species

There are two federally listed wildlife species, including the western snowy plover and the island night lizard. Both are discussed in detail below.

Western Snowy Plover

Under the Proposed Action, barges would land and offload at either Daytona Beach or Coast Guard Beach. Roads, airfield, and culverts repairs do not occur in western snowy plover habitat and would have no impacts.

The footprint of the Proposed Action includes potential plover habitat at the Coast Guard Beach landing site. Plovers have been recorded nesting on the back beach of the proposed barge landing area and in the Former Borrow Pit. The Former Borrow Pit is a relatively flat terraced area above the beach, consisting of colluvium and marine terrace substrate. The Former Borrow Pit would be used as a source of material for re-grading the access road for the Proposed Action. It would also be used as a pull-off area to allow dump trucks that travel up and down the access road to pass during barge offloads.

In recent years, nesting attempts of plovers may have been reduced at Coast Guard Beach because of the high densities of marine mammals present on the beach in spring. The Proposed Action would cause

short-term impacts at Coast Guard Beach in the Former Borrow Pit (1.10 acres) and on the beach itself (1.38 acres) as a result of surface grading, vehicle traffic, and human disturbance.

Barge landing and offload could affect nesting plovers at Coast Guard Beach by disrupting incubating behavior that could result in abandonment of nests or loss of nests through exposure or burial by sand. The action area at Daytona Beach is unlikely to support nesting plovers, but they could occur and be displaced by the Proposed Action.

Foraging behavior may be disrupted by noise and human activities. However, foraging western snowy plover chicks and adults at other project sites at NBVC Point Mugu appear to have tolerance to construction in the vicinity of their habitat. Activities that occur at the NBVC SNI supply pier do not appear to have affected western snowy plovers; nesting has occurred approximately 1,000 feet west of the supply pier.

Disturbance to the western snowy plover during implementation of the Proposed Action will be minimized or avoided by restricting barge landing and offloading to after the end of the breeding season, from August 1 through November 30. Based on historical nesting data for Coast Guard Beach east, the likelihood of active nesting during scheduled offloads is low, but chicks may be present. Before offloading begins, a qualified biologist will survey the action area at Daytona Beach and Coast Guard Beach for nesting plovers or chicks. The beach without active nests would be used for landing and offload, if conditions allow for safe landing and offload. In the unlikely event that nesting birds are present at both beaches, the beach that exhibits nesting the farthest distance from a safe offload site will be used when feasible and a qualified biologist will monitor incubating behavior. Therefore, the potential for impacts of the Proposed Action on western snowy plovers would be minimized. Additionally, implementation of minimization measures BIO-12, BIO-14, BIO-17, and WSP-1 and -2 would further reduce direct and indirect short and long-term impacts to western snowy plovers to less than significant levels. Therefore, implementation of the Proposed Action would have no significant impact to western snowy plovers.

Island Night Lizard

The Proposed Action occurs within a range of high- to low-density lizard habitat, as detailed in Table 3-20 above. Table 3-22 summarizes potential impacts to this species. Permanent direct effects to lizard habitat would occur in 0.07 acre of high-quality, high-density habitat on north Owen Road, from shoulder and culverts repair; up to 90 lizards may be affected. Permanent direct effects would occur in 0.42 acres

of medium-quality, medium-density habitat, from other Phase II road and culvert repairs, and the airfield culvert repair; up to 343 lizards may be affected. The remaining acreage of the project that occurs in low density habitat is 18 acres and could affect up to 151 lizards. These estimations of lizard impacts are based on the project-specific habitat assessment conducted by Gary Fellers and Charles Drost in June 2011 (Fellers and Drost 2011). Impacts may be permanent or temporary, direct and indirect, and are described below.

Table 3-22: Potential Direct Impacts to Island Night Lizard Habitat Within the Proposed Project Area

Habitat Type within Proposed Action Footprint*	Acres	Potential Lizard Impacts (Individuals)
High Density	0.07	90
Medium Density	0.42	343
Low Density	18	151

Notes: * Habitat densities are based on Fellers and Drost (2011).

Island night lizards congregate in suitable habitat with the result that home ranges overlap and a large number of lizards can occupy a small area (USFWS 2006). This tendency makes larger numbers of island night lizards susceptible to human activities that occur in high density areas. The area with the highest potential for direct impacts to lizards occurs at the north Owen Road shoulder and culverts.

The implementation of the minimization measures and the project's location primarily within existing road rights-of-way and other disturbed areas would minimize the potential for take of individual lizards. Nevertheless, it is anticipated that the Proposed Action will disrupt the movement of lizards or require the relocation of lizards in some areas. Lizards will likely be injured or killed by shoulder and culvert repairs and project-related traffic during construction in areas containing mid- to high-quality habitats with high densities of lizards (such as north Owen Road). When debris is left adjacent to occupied habitat, lizards may move into the pile. Many individuals could be injured or killed when the debris is removed.

The potential temporary direct impacts to lizards are limited to harassment. Lizards may be driven from or avoid suitable habitat by noise and activity, including removal of vegetation structure. Lizards may be purposefully moved out of harm's way by a USFWS-authorized person during project site preparation, construction, and asphalt batch plant facility operations. Short-term impacts are not anticipated to result in injury or mortality to lizards.

Relocation efforts have not previously been conducted to the scale that this project will require. Navy activities typically result in some relocation of lizards annually and range from 5 to 30 individuals per year (Tetra Tech 2011a; U.S. Navy 2011). The success of relocation efforts is largely unknown; follow-up or long-term monitoring of relocated lizards is not conducted. Additionally, the impacts to neighboring populations from the introduction of relocated lizards has not been studied. However, their life history and habitat affinities indicate that they are accustomed to overlapping home ranges, as described above.

Beneficial impacts would accrue through reduced erosion when the road shoulders are repaired, storm water conveyances are improved, and disturbed areas are revegetated with native species. Other impacts include long-term loss of habitat in areas where roads and airfield shoulders are widened, and loss of lizards through injury or mortality from construction activities and trampling by humans or traffic. Long-term indirect impacts include the increased potential that construction activities present for introduction of non-native plants that could displace the lizard's preferred vegetation.

The project spans 5 years at a minimum, so impacts to lizards would vary each year, depending on which activities occur, and would likely allow for recovery time between impacts. Implementation of minimization measures BIO-1 through -6, -8, -12, BIO-14, BIO-17, Veg-2, INL-1 through -6, and SWPPP-1 would reduce the level of impacts to less than significant. Therefore, implementation of the Proposed Action would have no significant impact to the island night lizard.

Non-Federally Listed Rare Wildlife Species

Avian species and the San Nicolas Island fox are present at NBVC SNI and within the boundaries of the footprint of the Proposed Action as discussed below.

Avian Species

A variety of migratory and resident bird species occur in the Proposed Action footprint. Foraging and roosting may be disrupted by project activities, but these impacts would be temporary, with birds likely returning to the area once the activities ceased. It is unlikely that nests would be located along road shoulders. Minimization measures include clearing vegetation outside of the nesting season when feasible; when clearing is not practical, pre-construction surveys would be conducted for active nests within 100 feet of the Proposed Action.

With implementation of minimization measures BIO-1 through 4, -8, -11, BIO-14 through 17, and Veg-2, short-term impacts to avian species would be less than significant. Therefore, implementation of the Proposed Action would have no significant impact to avian species.

San Nicolas Island Fox

Short-term impacts would occur to the San Nicolas Island fox from construction noise and activity. They would likely avoid immediate areas of construction, but would return when the project was complete. Long-term impacts could also occur; it is possible that the increased amount of construction machinery on roads could result in mortality to individual foxes. Additionally, after the project is complete, the improved road surfaces and increased width of roads could result in higher traffic speeds, which may in turn result in a higher incidence of vehicle and fox collisions. The Navy tracks fox mortalities from vehicles, and objectives for management of the fox as outlined in the NBVC SNI INRMP (U.S. Navy 2010a) include reducing these types of mortalities. The foxes' mobility and the Navy's ongoing management of traffic speeds and roadside warning signs educating drivers on the presence of the fox will reduce these impacts to less than significant.

Construction would occur during the day only, which would reduce the possibility of collisions and fox mortalities. Disturbance to active fox dens in culverts would be avoided with implementation of minimization measure BIO-7.

With implementation of minimization measures BIO-1 through -7, BIO-9, BIO-12, BIO-14, and BIO-17, impacts to San Nicolas Island foxes would be less than significant. Therefore, implementation of the Proposed Action would have no significant impact to the San Nicolas Island fox.

Marine Mammals

Barge beach landings and associated construction could affect pinnipeds at Daytona and Coast Guard beaches in two main ways:

(1) Potential displacement of haul out areas at the barge landing site (behavioral effects); and

(2) Potential impacts of noise associated with barge landing and construction (noise effects).

Either of these two effects has the potential for "harassment" or "take." Takes are defined differently under the ESA and MMPA; only the definition under the MMPA is relevant to this analysis because the

species occurring in the footprint of the Proposed Action are not listed under the ESA. To take under the MMPA is defined as "to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal." The 1994 amendments to the MMPA establish two types of takings or harassment, one that involves injury (Level A), and another that involves direct or indirect disturbance (Level B). Level A harassment is "any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild," and Level B harassment is "any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns," as defined under the MMPA. NMFS considers Level B harassment to occur when a marine mammal has a "significant behavioral response in a biologically important behavior or activity."

Historically, actions similar to the Proposed Action have occurred at both Daytona and Coast Guard Beaches. This section describes these prior activities relative to pinniped displacement, because potential impacts from the Proposed Action are expected to be similar. This description is followed by a general discussion of the potential impacts of noise.

Displacement

Only a small number of adult pinnipeds are expected to occur during barge beach landing operations (from August through November) and pups are not expected to be present at both Daytona Beach and Coast Guard Beach. Given past trends, only a few straggler adult sea lions and elephant seals are expected to occur at either beach. Harbor seals have only rarely occurred in the Daytona Beach barge landing area and have been observed normally at the west end of Coast Guard Beach, but there is a chance that they could occur in the barge landing areas for the Proposed Action as well. Daytona Beach is expected to have more pinnipeds than Coast Guard Beach.

The Navy historically has had to displace pinnipeds from Daytona Beach and Coast Guard Beach during past barge landings at Daytona Beach (which occurred from 1976 to 2002), construction of the pier at Daytona Beach (in 2005), and during repairs of the RO water system at Coast Guard Beach (in 2005 and 2006). Pinniped populations at Daytona Beach increased dramatically during past barge beach landings (Smith 2005).

According to pinniped displacement reports from 2003 to 2006, marine mammals hauling out on Daytona Beach during barge beach landings and pier construction appeared unaffected by the associated noise and presence of humans and equipment. The steady increase of pinniped populations at Daytona Beach

throughout the history of barge beach landings before construction of the pier, as well as during construction of the pier, suggests that the animals are not adversely affected by these activities. Like Daytona Beach, marine mammals hauling out on Coast Guard Beach during repairs of the RO water system did not appear to be significantly affected by the associated noise and presence of humans and equipment. Typical responses to displacement included increased alertness, rising of the head, and movement either laterally along the beach or in the direction of the water (2005 displacement letter from Grace Smith to Rod McInnis/NMFS). The continued use of Coast Guard Beach by elephant seals and sea lions suggests that the pinniped populations were not adversely affected by these activities. Furthermore, the Proposed Action is not expected to affect pups or pinniped breeding behavior because beach landings would only take place from August 1 to November 30, outside of breeding season. If animals were present, minimization measure BIO-10 would ensure that pinnipeds are displaced safely using the same methods as were used during the 2005 pier construction and animals would be closely monitored. Therefore, displacement impacts on pinnipeds would be short-term and less than significant. Implementation of the Proposed Action would have no significant impact to marine mammals.

Noise

Noise can potentially affect behavior for marine mammals, may cause displacement, masking effects (reduce a pinniped's ability to hear other, lower-level sounds in their environment), or impair hearing or have other physiological effects. Noise generated at the temporary asphalt batch plant, which would be located approximately 300 feet uphill from Coast Guard Beach, would generate noise at approximately 66.5 decibels (dB) at Coast Guard Beach (given that sound attenuates 6 dB with every doubling of the distance away from the source [California Department of Transportation 2009] [see Section 3.8, Noise]). The beach is lower in elevation than the temporary asphalt batch plant, and noise from the plant would likely be inaudible at this distance over ambient sound at the surf zone (Southall and others 2007). Given the low level of noise being generated and the distance from the beach, noise from the asphalt batch plant would not be expected to adversely affect pinnipeds at Coast Guard Beach. Therefore, implementation of the Proposed Action would have no significant impact to marine mammals.

Marine Communities

Marine Flora

Under the Proposed Action, both Daytona Beach and Coast Guard Beach would be used for anchoring barges and landing the tender barge. Discrete kelp and eelgrass beds occur in the vicinity of the landing

beaches. Kelp beds occur near both landing beaches (Daytona and Coast Guard Beach), and an eelgrass bed occurs at Coast Guard Beach (Figure 3-3).

Kelp grows at a rate of 1 to 2 feet per day and any canopy disruption would be naturally repaired within a very short time. Barge operators will use the most recent information about the boundaries of the kelp canopy and eelgrass beds, as provided by the Navy, to determine the clearest path of travel for avoidance. Therefore, direct impacts to marine flora would likely not occur, but if so, would be short-term and reversible.

Indirect impacts include increased turbidity and potentially excessive sediment deposition, which could affect eelgrass growth and distribution. However, it could be expected that regular wave disturbance and cycles of erosion and deposition of sand at either beach would be much greater than this level of disturbance. Thus, the project will not create enough sedimentation to cause a significant impact. The implementation of minimization measures BIO-1, EFH-1 through -6, and SWPPP-1 would reduce short-term impacts to marine flora to less than significant levels. Therefore, implementation of the Proposed Action would have no significant impact to marine flora.

Benthic Invertebrates

Under the Proposed Action, the barge landing and offloading would have direct and indirect impacts to benthic invertebrates.

The sandy bottom would be disturbed offshore when the shipping barge drops anchor and when the tender barge lands on the beach. Contact with the seafloor would disrupt the substrate and the organisms inhabiting it and temporarily increase turbidity, but no long-term impacts would result. Turbidity events would be limited to the duration of barge landing and offload and would occur in the immediate vicinity of the barge landing. Regular wave disturbance and cycles of erosion and deposition of sand at either beach would be expected to be much greater than this level of disturbance.

Indirect impacts would occur to benthic invertebrates that are sensitive to turbidity: suspended sediments would reduce light penetration through the water column and interfere with filter-feeding behavior. Additionally, some fishes are attracted to localized areas of suspended sediments and take advantage of the decreased visibility to prey on benthic invertebrates that were disturbed by the event. Based on the limited extent and duration of the Proposed Action, effects to benthic invertebrates would be minimal, temporary, reversible, and not significant. Implementation of minimization measures BIO-1, EFH-1

through -7, and SWPPP-1 would further minimize impacts. Therefore, implementation of the Proposed Action would have no significant impact to benthic invertebrates.

Fish and Essential Fish Habitat (EFH)

Under the Proposed Action, much of the activity would occur on land and have no effect on fish or EFH. The road and culvert restoration may have a beneficial effect on nearshore EFH because restoration would decrease erosion and sedimentation. The greatest potential impact on EFH is delivery of aggregate to NBVC SNI. The shipping and tender barges would avoid kelp canopy and eelgrass beds. However, barge landing operations have the potential to affect EFH in the following ways:

- Physical disruption or modification of benthic habitats; and
- Degradation of water quality by suspended sediment, effluent, or marine debris.

Physical disturbance of the water column by the arrival and positioning of the shipping and tender barges would cause brief, reversible disruptions in fish distribution, but would not permanently degrade or adversely affect any EFH. The barge activities would not cause any long-term impact to any fish species. Groundfish, coastal pelagics, and highly migratory species would likely disperse when disturbed by project activities, but then return once the delivery is completed and the landing area is returned to its pre-delivery condition.

As described above for impacts to benthic invertebrates, turbidity events would be limited to the duration of barge landing and offload.

Indirect impacts to EFH could occur from excessive sediment deposition that could affect eelgrass (or other seagrass) growth and distribution at Coast Guard Beach. These indirect impacts are unlikely with implementation of minimization measures EFH-1 through EFH-6.

Vessels could introduce hazardous materials such as fuel and oil, but their introduction is unlikely, with any occurrence mitigated through standard spill control responses. Ballast and bilge discharge from vessels would comply with international conventions. During the transfer of aggregate from the shipment barge to the tender barge, BMPs would be implemented to capture accidental spillage of aggregate. These measures include, but are not limited to, the use of a conveyor system and/or placement of a tarp or other catchment barrier positioned between the vessels. Spillage would be prevented and as such, would have little to no direct or indirect impacts on managed fish species or their habitat.

Based on the limited extent and duration of the Proposed Action, effects to fish and EFH would be minimal, temporary, reversible, and not significant. Implementation of minimization measures BIO-1, EFH-1 through -6, and SWPPP-1 would further minimize impacts to fish and EFH. Therefore, implementation of the Proposed Action would have no significant impact to fish and Essential Fish Habitat.

Waters of the United States

Roads and culvert repairs are necessary because of the excessive erosion occurring along road shoulders and culverts. All of the drainage ditches that connect to the ocean are considered non-tidal WOUS and therefore subject to Sections 404 and 401 of the Clean Water Act. Under the Proposed Action, culvert replacement would cause short-term and long-term impacts to WOUS by discharge of fill into drainage channels that connect to the Pacific Ocean. Short-term impacts would occur from construction activities within drainages. Some culvert repairs would involve reshaping the associated drainage ditches, which would result in temporary discharge of fill. However, the centerlines of the drainage ditches would not be relocated. Less than significant long-term impacts to WOUS would occur from the placement of fill at the slope extending from the road shoulder to the base of the inlets and outlets of culverts. Additionally, the larger culvert repairs that require installation of concrete energy dissipation box systems would extend slightly further into the drainage course than existing culverts. Repairs to up to 19 culverts, 11 of which may be WOUS if a significant nexus can be established (Tetra Tech 2012a, 2012b) will temporarily affect up to 0.14 acres of potential WOUS. Phase I culvert repairs will have long-term impacts to 0.008 acre of potential WOUS. Phase II long-term impacts to WOUS cannot be definitively quantified at this time, but could be up to 0.018 acre, based on Phase I culvert repair specifications. Standard erosion control practices would be employed to minimize and avoid discharge into WOUS.

The net effect of roads and culvert repairs would be beneficial to WOUS by decreasing overall sediment delivery and transport in drainages by eliminating erosion at culverts and road shoulders. The Proposed Action would result in an increase in natural habitat in repaired drainages. No other impacts are expected to WOUS or wetlands on NBVC SNI. During construction of the Proposed Action, the implementation of minimization measures BIO-1, -2, and -4, and SWPPP-1 would reduce construction impacts to WOUS to less than significant levels. Therefore, implementation of the Proposed Action would have a net beneficial effect to WOUS.

3.2.3 Environmental Consequences of Alternative 2

Under Alternative 2, the environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Daytona Beach (and not at Coast Guard Beach), and they would be minor. Implementation of Alternative 2 would result in no significant impacts to biological resources.

3.2.4 Environmental Consequences of Alternative 3

Under Alternative 3, the environmental effects on biological resources would essentially be the same as those in the Proposed Action for all road and airfield repair work. The only differences in impacts from the Proposed Action would be from the barges only landing at Coast Guard Beach (and not at Daytona Beach), and they would be minor. Implementation of Alternative 3 would have no significant impact to biological resources.

3.2.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, the roads and airfield repairs, including culvert repairs, would not occur. Therefore, there would be no significant impact to biological resources under the No-Action Alternative.

3.2.6 Mitigation Measures

With implementation of minimization measures to protect biological resources, impacts are less than significant. Therefore, no mitigation measures are required.

3.3 CULTURAL RESOURCES

3.3.1 Affected Environment

Area of Potential Effect

The area of potential effect (APE) for the proposed undertaking consists of the surface area and depths within the project areas that would be affected by the actions detailed above. Additionally, it includes the historic landscape of adjacent cultural resources. Furthermore, the APE includes the entire area (surface

and depth) of any archaeological resource partially within the project area. Specifically, the APE includes the following areas:

- The 12.45 miles of 25-foot-wide proposed roadway repairs to a depth of 20 inches;
- All road culvert repair areas;
- The 12 existing 200-by-200-foot staging areas along the road repair segments;
- The 200- by 350-foot long portion of the airfield runway to a depth of 4 feet;
- The 25-foot wide airfield runway shoulder areas to a depth of 2.5 feet;
- The airfield culvert repair area;
- The Monroe borrow pit, contractor yard, and the Public Works Storage Yard;
- The landing areas at Daytona Beach and Coast Guard Beach;
- The 0.1-mile unpaved road between Coast Guard Beach and the proposed asphalt batch plant site; and,
- The proposed temporary asphalt batch location off Beach Road.

A 50-foot buffer from centerline along the various roads repair sections is also included as an APE. Although the entirety of this area would not be directly affected by ground disturbance, it is included to ensure consideration of historic built environment landscapes.

Resource Inventory Methodology

Site records and other archival information were examined to assess the potential for significant impacts on cultural resources within the APE. Also, cultural resources within the project area were identified from maps and lists of NBVC SNI's known cultural and historic resources. The entirety of NBVC SNI has previously been surveyed for archaeological resources. All identified archaeological sites have been documented (see Reinman and Lauter 1984 and Martz 2002).

Several studies of the historic built environment of NBVC SNI have also been completed. An inventory and NRHP-evaluations of all buildings and structures on NBVC SNI was completed in 1998 (JRP 1998a).

Subsequent to that survey, historic contexts for the military use of NBVC SNI as well as guidance for evaluating historic built environment resources on-island were developed, including for World War II (WW II)-era buildings and structures (JRP 1999) and Cold War-era buildings, structures, and island use (Bischoff and Thompson 2006, Wee and Byrd 2000). The California Historic Military Buildings and Structures Inventory provides an integrated summary of inventories completed on military bases within the State of California, establishes themes and contexts that may be used in evaluating resources significance, and discusses known examples of property types associated with these themes (Foster Wheeler Environmental Corporation and JRP Historical Consulting Services 2000).

Results of Resource Inventory

Several archaeological and historic built environment resources were identified by NBVC as within the APE of the undertaking. These resources are summarized in Table 3-23 below, which is followed by more detailed descriptions of the resources. All of the buildings were evaluated for NRHP eligibility in 1998. Some were determined NRHP-ineligible because they did not meet the "exceptional significance" requirements for resources less than 50 years old. However, several of these buildings that were less than 50 years old in 1998 have since achieved sufficient age to be considered NRHP-eligible but have not been re-evaluated. In some cases, the construction date of the building is not specified on the building record form and therefore it is unclear if the building has reached the 50-year threshold for eligibility. These buildings are listed below as "undetermined."

Archaeological Resources

Fourteen archaeological sites have been identified by the Navy's GIS database as within the APE. These sites are summarized below.

CA-SNI-21 (Directly Impacted by Tufts Road and Ordnance Alley Phase II Repairs; NRHP-Eligible): Archaeological site CA-SNI-21 is a large midden (mound or deposit containing shells, animal bones, and other refuse indicating human settlement) situated on a large longitudinal sand dune, originally recorded in 1997 by C. Harper, D. McIntosh, and G. Unzueta. The site parallels Tufts Road and is bisected by Ordnance Alley. An unnamed paved road that is also proposed for repairs borders the north side of the site. This unnamed road may have disturbed the site when it was first constructed. The eastern portion of the site has been disturbed by construction of two parallel wooden fencelines that run north to south. Features in the site include at least four red abalone (*Haliotis rufescens*) concentrations, a cache of four red ochre-covered pestles (previously collected), human remains, a concentration of sea mammal bone in

association with human remains, a hearth with associated groundstone and fire-affected flagstones, and a concentration of groundstone with tarring pebbles. Notable artifacts include a chert projectile point of unknown form (previously collected), sandstone pestles, pitted stones, manos, and orbs. The site has been interpreted as a large substantial habitation area where flaked stone manufacturing, shellfish and fish processing, ritual activities, and shell bead manufacturing occurred. It is considered to have good research potential to address questions regarding settlement systems, subsistence strategies, lithic and shell bead technology, social organization, cultural chronology, paleoenvironmental influences, regional interaction and trade, and cultural affiliation. For these reasons, it appears to be NRHP-eligible (Martz and Edmondson 2011a).

Table 3-23: Archaeological and Historic Built Environment Resources within the APE

Resource	Resource Type	Affecting Undertaking Component	NRHP Eligibility
Archaeological Sites			
CA-SNI-21	Midden with Human Remains	Direct, Tufts Road, and Ordnance Alley Phase II	Eligible
CA-SNI-26	Sparse Lithic Scatter	Direct, Shannon Road Phase I	Ineligible
CA-SNI-29	Lithic Scatter and Buried Midden	Direct, Shannon Road Phase I	Undetermined
CA-SNI-33	Sparse Lithic Scatter with Midden	Adjacent to Shannon Road Phase I	Undetermined
CA-SNI-38	Midden with Human Remains	Adjacent to Daytona Beach Barge Landing Site	Eligible
CA-SNI-78	Lithic and Marine Shell Scatter	Adjacent to Shannon Road Phase I	Ineligible
CA-SNI-109	Midden with Lithic and Marine Shell Scatter	Direct, Jackson Highway Phase II	Undetermined
CA-SNI-112	Lithic and Marine Shell Scatter	Direct, Shannon Road Phase II	Undetermined
CA-SNI-261	Lithic and Marine Shell Scatter	Adjacent to Jackson Highway Phase II	Ineligible
CA-SNI-303	Quarry and Lithic Workshop	Direct, Jackson Highway Phase II	Undetermined
CA-SNI-344	Lithic Scatter with Quarry and Middens	Direct, Jackson Highway Phase I	Eligible
CA-SNI-361	Buried Midden	Adjacent to Nicktown Phase II	Ineligible
CA-SNI-384	Lithic and Marine Shell Scatter with Groundstone	Direct, Jackson Highway Phase II	Ineligible
CA-SNI-385	Lithic and Marine Shell Scatter	Adjacent to Jackson Highway Phase II	Ineligible
Built Environment			
Building N138	Radar Tower	Adjacent to Jackson Highway Phase II	Eligible
Building N152	Main Administration Building	Adjacent to Nicktown Phase II	Undetermined
Building N300	Flagpole	Adjacent to Nicktown Phase II	Undetermined
Buildings N105, N106, and N107	Magazines	Adjacent to Tufts Road Phase II	Ineligible
Buildings N110 and 290	Ordnance Assembly Buildings	Adjacent to Tufts Road Phase II	Ineligible
Building N23	Baseball Field	Adjacent to Nicktown Phase II	Undetermined

Table 3-23: Archaeological and Historic Built Environment Resources within the APE (Cont.)

Resource	Resource Type	Affecting Undertaking Component	NRHP Eligibility
Building N24	Two Tennis Courts	Adjacent to Nicktown Phase II	Undetermined
Building N75	Racquetball Court	Adjacent to Nicktown Phase II	Undetermined
Building N25	Recreation Facility/Temporary Galley and Open Mess	Adjacent to Nicktown Phase II	Ineligible
Building N74	Weight Room and Shower	Adjacent to Nicktown Phase II	Undetermined
Building N111	Mess Hall and Galley	Adjacent to Nicktown Phase II	Undetermined
Building N151	Theater and Recreation Building/Exchange, Library, and Recreational Facility	Adjacent to Nicktown Phase II	Ineligible
Building N154	Warehouse/Basketball Court and Gym	Adjacent to Nicktown Phase II	Undetermined
Building N215	Hobby Shop	Adjacent to Nicktown Phase II	Undetermined
Buildings N45 and N46	Expendable Material Processing Facilities	Adjacent to Nicktown Phase II	Undetermined
Building N46A	Shed	Adjacent to Nicktown Phase II	Undetermined
Building N49	Garage	Adjacent to Nicktown Phase II	Undetermined
Building N51	Battery Shop	Adjacent to Nicktown Phase II	Undetermined
Building N147	Public Works Offices and Maintenance Shop	Adjacent to Nicktown Phase II	Undetermined
Building N202/N203	Vehicle Washrack	Adjacent to Nicktown Phase II	Undetermined
Building N213	Lumber Storage Shed	Adjacent to Nicktown Phase II	Undetermined
Buildings N214 and N214A	Sheds	Adjacent to Nicktown Phase II	Undetermined
Buildings N57, N59, N99, N109, and N118	Quarters	Adjacent to Nicktown Phase II	Ineligible
Buildings N126, N150, N181, and N191	Quarters	Adjacent to Nicktown Phase II	Undetermined
Building N144	Missile Project Building/Aircraft Fire and Rescue Station	Adjacent to Monroe Drive Phase I	Ineligible
Building N158	Structural Fire Station	Adjacent to Owen Road and Monroe Drive Phase I	Undetermined

Table 3-23: Archaeological and Historic Built Environment Resources within the APE (Cont.)

Resource	Resource Type	Affecting Undertaking Component	NRHP Eligibility
Building N211	Photography Building	Adjacent to Monroe Drive Phase I	Ineligible
Building N187	Electronics Maintenance Shop	Adjacent to Owen Road Phase I	Undetermined
Building N265	Shop and Storage Facility	Adjacent to Owen Road Phase I	Ineligible
Building 111A	Emergency Generator Shelter	Adjacent to Nicktown Phase II	Ineligible
Building 114	Electrical Plant	Adjacent to Owen Road Phase I	Undetermined
Building N128	Telephone Exchange	Adjacent to Nicktown Phase II	Undetermined
Building N197	Transformer Vault	Adjacent to Airfield	Undetermined
Building N228	Incinerator	Adjacent to Nicktown Phase II	Ineligible
Buildings N50 and N196	Desalinization Plant Complex	Adjacent to Coast Guard Beach Barge Beach Landing Site	Ineligible
Building N199	Desalinization Plant Complex	Adjacent to Coast Guard Beach Barge Beach Landing Site	Undetermined
Buildings N131, N132, N133, and N134	Wells with Pumphouses	Adjacent to Tufts Road Phase II	Undetermined
Building N161	Pumping Stations	Unknown	Undetermined
Buildings N104	Storage Tanks	Unknown	Undetermined
Building N121B	Storage Tank	Adjacent to Airfield	Undetermined
Buildings N92, N103, N129, N200, N280, N282, and R4	Storage Tank	Adjacent to Owen Road	Undetermined
Building N159 and N160	Pumping Station	Adjacent to Owen Road	Undetermined
Building N120A	Pumping Station	Adjacent to Tufts Road Phase II	Undetermined
Building N299	Pumping Station	Adjacent to Tufts Road Phase II	Ineligible
Building N130	Storage Tank	Adjacent to Tufts Road Phase II	Ineligible
Building N198	Water Treatment Plant and Pumphouse	Adjacent to Tufts Road Phase II	Ineligible
Buildings N66 and N67	Quonset Huts	Adjacent to Airfield	Ineligible
Building N60	Quonset Huts	Adjacent to Nicktown Phase II	Ineligible
Buildings N71 and N72	Garages	Adjacent to Nicktown Phase II	Ineligible
Shed by Building N146	Crew Shed	Adjacent to Airfield	Ineligible

CA-SNI-26 (Directly Impacted by Shannon Road Phase I Repairs; NRHP-Ineligible): Archaeological site CA-SNI-26 is a sparse lithic scatter originally recorded by Dowell, D. McIntosh, and G. Unzueta in 1997. It is dissected by Shannon Road in its eastern portion. Parts of the site have a cobble quarry-like appearance. Other notable artifacts observed on the site include fire-affected flagstone and one fragmented sandstone mortar with a groove along some of the rim pieces. The site has been interpreted as a flaked stone manufacturing area and has minimal potential to answer research questions regarding lithic technology. For this reason, it has been recommended as NRHP-ineligible (Martz and Edmondson 2011b).

CA-SNI-29 (Directly Impacted by Shannon Road Phase I Repairs; Undetermined NRHP Eligibility): The site is a large lithic scatter with a dissected buried midden, originally recorded in 1997 by C. Harper, D. McIntosh, and C. Dowell. The site has been dissected by Shannon Road, and an old dirt road runs east from Shannon Road through the eastern portion of the site. This old dirt road dissects the buried midden. The midden is located in the portion of the site that is east of Shannon Road. The area west of the road has been graded. A large pile of dirt has been dumped near the midden as well. The northeastern portion of the site is deflated down to caliche outcrops. The western portion of the site is deflated and eroded as well. The only feature noted at this site is the buried midden area. A chert biface of unknown form was collected from the site in 1997. The midden area is heavily overgrown and disturbed, and cultural material is eroding out of the surface of the mound. The site has been interpreted as a probable lithic manufacture area where some shellfish processing took place. It is considered to have minimal potential to address questions regarding lithic technology, cultural chronology, settlement systems, subsistence strategies, and regional interaction and trade. The NRHP eligibility of the site is undetermined (Martz and Edmondson 2011c).

CA-SNI-33 (Adjacent to Shannon Road Phase I Repairs; Undetermined NRHP Eligibility): Archaeological site CA-SNI-33 is a large, sparse lithic scatter with some scattered marine shell and two deflated midden areas originally recorded in 1997 by G. Unzueta, C. Dowell, and D. McIntosh. The site is deflated and eroded and has been dissected by Shannon Road. Both deflated midden areas can be found west of Shannon Road. It has been interpreted as a temporary camp area, where shellfish processing and lithic manufacture took place. Testing has been recommended to determine whether the deflated midden mounds contain sufficient intact cultural materials to address questions regarding subsistence strategies and settlement systems. It was also recommended that the lithic scatter be examined to evaluate whether there is sufficient quantity and variety to address questions regarding lithic

technology. For these reasons, the NRHP eligibility of the site has not been determined (Martz and Edmondson 2011d). It is unknown whether the recommended testing has occurred.

CA-SNI-38 (Adjacent to Daytona Beach Barge Landing Site; NRHP-Eligible): Archaeological site CA-SNI-38 is a dense buried shell midden recorded at Daytona Beach by C. Harper, G. Unzueta, and A. Affifi in 1997. The heaviest deposit of cultural materials appears to be located in the southern half of the site and can be observed in the cut banks, which dissect the site. The site has been heavily disturbed in the southwestern portion by construction of Beach Road and the Cat House parking lot. Excavations have determined that this area is a complex Late Period site complete with at least three human burials, large quantities of woven sea grass materials, fishing technology, and at least four separate occupation periods. The site has been interpreted as a probable area of substantial habitation and has excellent research potential to address questions regarding settlement patterns, cultural chronology, cultural affiliation, various technologies, paleoenvironmental influences, social organization, regional interaction and trade, and subsistence strategies. For these reasons, it has been recommended as NRHP-eligible (Martz and Edmondson 2011e).

CA-SNI-78 (Adjacent to Shannon Road Phase I Repairs; NRHP-Ineligible): Archaeological site CA-SNI-78 is a lithic and sparse marine shell scatter originally recorded in 1997 by C. Harper, G. Unzueta, and A. Affifi. It was possibly disturbed by construction of Shannon Road, which is immediately west of the site. The function of the site has been interpreted as related to flaked stone manufacturing. It is considered to have minimal research potential to address questions regarding lithic technology and post-depositional processes. For these reasons, the site has been recommended as NRHP-ineligible (Martz and Edmondson 2011f).

CA-SNI-109 (Directly Impacted by Jackson Highway Phase II Repairs; Undetermined NRHP Eligibility): Archaeological site CA-SNI-109 is a small deflated and eroding midden with a marine shell and lithic scatter originally recorded in 1997 by C. Harper, G. Unzueta, and A. Affifi. An overgrown and unused dirt road runs through the northern portion of the site. The site was likely disturbed by construction of Jackson Highway, which runs along the southern and western portions of the site. It has been interpreted as a temporary camp where flaked stone manufacturing and shellfish processing occurred. Testing has been recommended to evaluate whether there is sufficient integrity to address questions regarding settlement systems, subsistence strategies, lithic technology, and post-depositional processes. Until such testing can occur, the NRHP eligibility of the site is undetermined (Martz and Edmondson 2011g).

CA-SNI-112 (Directly Impacted by Shannon Road Phase II Repairs; Undetermined NRHP Eligibility): Archaeological site CA-SNI-112 is a lithic and marine shell scatter originally recorded by C. Harper, G. Unzueta, and A. Affifi in 1997. The western boundary of the site is dissected by Shannon Road. A portion of the site may be buried beneath a dune. Features recorded in the site include a disturbed hearth and a concentration of possible tarring pebbles. The site has been interpreted as a probable temporary camp where flaked stone manufacturing, shellfish processing, and possibly shell bead production occurred. This site is considered to have minimal research potential to address questions regarding settlement systems, subsistence strategies, lithic technology, and post-depositional processes. If an intact, buried midden is present, it may have the potential to provide data regarding cultural chronology. For these reasons, the NRHP eligibility of the site is undetermined (Martz and Edmondson 2011h).

CA-SNI-261 (Adjacent to Jackson Highway Phase II Repairs; NRHP-Ineligible): Archaeological site CA-SNI-261 is a sparse lithic scatter with several pieces of marine shell recorded by C. Harper, G. Unzueta, and A. Affifi in 1997. It and CA-SNI-265, on opposite shoulders of Jackson Highway, may be part of the same site. This site has been interpreted as a probable lithic manufacturing station. Because of erosion, deflation, and disturbance, it has poor research potential to address questions regarding settlement systems and lithic technology. For these reasons, it has been recommended as NRHP-ineligible (Martz and Edmondson 2011i).

CA-SNI-303 (Directly Impacted by Jackson Highway Phase II Repairs; Undetermined NRHP Eligibility): Archaeological site CA-SNI-303 appears to be the remains of a quarry and lithic workshop recorded in 1997 by C. Harper, G. Unzueta, and A. Affifi. The site is bisected by Jackson Highway and includes a moderate scatter of cores, core fragments, chipping waste, flakes, and worked and unworked cobbles and hammerstones, mostly metavolcanics and breccia. The cobble outcrop is on the north side of Jackson Highway, while the lithic workshop is on the south. Recorded features on the site include one hearth remnant. The site is deflated and appears to have no subsurface component. Additional examination of the lithic scatter has been recommended to evaluate whether there is sufficient density and variety to address questions regarding lithic technology and settlement systems. In addition, the site may provide information regarding cultural chronology if the hearth contains intact charcoal. For these reasons, the NRHP eligibility of the site is undetermined (Martz and Edmondson 2011j).

CA-SNI-344 (Directly Impacted by Jackson Highway Phase I Repairs; NRHP-Eligible): Archaeological site CA-SNI-344 is a lithic scatter and quarry area with the deflated remnants of three to four shell midden features, originally recorded in 1997 by C. Harper, G. Unzueta, and A. Affifi. There are

thousands of lithics scattered on the surface of the site, which is bisected by Jackson Highway. One of the midden features may have been buried and subsequently destroyed by construction of the highway. A possible chert crescent was collected in 1997. The site has been disturbed by a paved road that leads to Building #148, two unnamed dirt roads, a bulldozer scrape, and construction of an antenna and receiver. At least two buried cables are in the northern half of the site. Little or no marine shells are scattered between the midden remnants. The site has been interpreted as a probable location of flaked stone manufacturing with cobble quarries at each end of the site. The site also likely functioned as a temporary camp where shellfish processing occurred. The variety of lithics present, including worked chert, suggests that the site may provide important information regarding lithic technology and regional interaction and trade. Testing has been recommended to evaluate whether intact cultural deposits are present to address questions regarding cultural chronology, settlement systems, subsistence strategies, and post-depositional processes. Surface evaluation of the lithic density would confirm the potential for lithic technology studies. Despite these unanswered questions, the site is considered NRHP-eligible (Martz and Edmondson 2011k).

CA-SNI-361 (Adjacent to Phase 2 Road Repairs in Nicktown; NRHP-Ineligible): Archaeological site CA-SNI-361 is a possible buried midden, with some cultural material visible at the surface, recorded in 1997 by C. Harper, G. Unzueta, and A. Affifi. The site location appears to have been cleared and leveled for construction of the racquetball building and a concrete slab. It has been difficult to identify the actual function of the site, but shellfish processing and lithic manufacture probably took place there. Fragments of sea mammal bone have also been found in the highly disturbed site. A radiocarbon sample from the materials recovered during past excavations should provide some information regarding cultural chronology. However, the site appears to be too disturbed to address other research domains. For this reason, the site has been determined NRHP-ineligible (Martz and Edmondson 2011l; York and others 2011).

CA-SNI-384 (Directly Impacted by Jackson Highway Phase II Road Repairs; NRHP-Ineligible): Archaeological site CA-SNI-384 is a sparse lithic scatter with some groundstone fragments and fragmentary shellfish remains recorded in 1996 by C. Harper, G. Unzueta, A. Affifi, and P. Martz. The site is bisected by Jackson Highway and appears to be deflated. Trench cuts on the north portion of the site paralleling the road indicate that the site has no depth. The site has been interpreted as a lithic manufacturing activity area. It has been disturbed and lacks the integrity needed to address research questions (Martz and Edmondson 2011m).

CA-SNI-385 (Adjacent to Jackson Highway Phase II Road Repairs; NRHP-Ineligible): Archaeological site CA-SNI-385 consists of a sparse lithic scatter and scant marine shell along the northern shoulder of Jackson Highway. It was recorded in 1996 by C. Harper, G. Unzueta, A. Affifi, and P. Martz. The site appears to be the remnants of a lithic manufacturing area. The lithic assemblage is sparse and lacks the density and variety needed to address questions regarding lithic technology. It has therefore been recommended NRHP-ineligible (Martz and Edmondson 2011n).

Built Environment Resources

Seventy-six built environment resources in 11 categories are within the APE. Only one NBVC SNI building, Building N138, is considered NRHP-eligible (JRP Historical Consulting Services 1998b) and within the APE for the proposed undertaking.

Building N138 (Adjacent to Jackson Highway Phase II Road Repairs; NRHP-Eligible): The building is a six-sided reinforced three-story concrete radar tower, formerly topped with a fiberglass radar enclosure, built in 1948 along Jackson Highway. The dome was blown off the building by high winds after the initial recording and NRHP-eligibility assessment of the building. It has a high degree of integrity and appears to be NRHP-eligible under Criteria A and C for its role in the development of the Point Mugu sea range and as a distinguished example of a type, period, and method of construction. Building N138 epitomizes why the Navy established a permanent installation at NBVC SNI: to track the flight of missiles. The building is the oldest and apparently the first permanent radar installation on the island, and it played an important part in the early tests of the station. Its structure is distinctive, having been designed and built by the public works section at Point Mugu to match the specific requirements of the equipment. The period of significance for the building is 1948 to 1958, when many new radar towers on the island largely superseded the function of Building N138 (JRP 1998b).

Buildings N152 and N300 (Adjacent to Nicktown Phase II Road Repairs; Undetermined NRHP Eligibility): Building N152 was constructed in 1957; it serves as the main administration building for NBVC SNI and is located in Nicktown. Building N300 is a metal flagpole with halyard in front of Building N152. The two buildings were evaluated in 1997 as NRHP-ineligible because of their age at the time (JRP 1997). The buildings have since reached the 50-year threshold for NRHP eligibility and require re-evaluation.

Magazine/Ordnance Handling Buildings (Buildings N105, N106, N107, N110, and N290; Adjacent to Tufts Road Phase II Road Repairs; NRHP-Ineligible): Buildings N105, N106, and N107 are standard earth-covered steel arch magazines built in 1965 arrayed in a line and surrounded by a chain link fence. They are used for receiving, storing, and issuing ordnance. Buildings N110 and N290 are ordnance assembly buildings located near the magazines. Building N110 was constructed in 1965, while Building N290 was built in 1986. Both are used for assembly, disassembly, and checkout of experimental and operational explosives, missiles, targets, and ordnance items. All five buildings were evaluated in 1998 as NRHP-ineligible because they are all less than 50 years old and are not exceptionally significant (JRP 1998c).

Morale, Welfare, and Recreation Buildings (Buildings N23, N24, N25, N74, N75, N111, N151, N154, and N215; Adjacent to Nicktown Phase II Road Repairs; Undetermined NRHP Eligibility): These buildings provide recreational, educational, and social services to NBVC SNI-based personnel. Buildings N23 and N24 are actually sports-related facilities. N23 is a baseball field and bleacher seating area, and N24 consists of two standard, hard-surface tennis courts. Both were laid out in 1957. Building N75 houses a racquetball court built in 1978. Building N25, built in 1967, is a recreation facility that serves as the temporary galley and open mess. Building N74 is used as a weight room and shower and is believed to have been built no earlier than 1967. Building N111 is a mess hall and galley. It was built in 1952 and was the first permanent structure built in Nicktown, but was undergoing renovation at the time of its recordation in 1998. Building N151 is a theater and recreation building built in 1957. It currently houses a small exchange, library, and other recreational facilities. Building N154 was designed as a warehouse and built in 1957, but is now used as an indoor basketball court and gymnasium. Building N215 is a hobby shop. All nine buildings and facilities were evaluated in 1998 as NRHP-ineligible based on their young age, but have since reached the 50-year threshold for NRHP eligibility (JRP 1998d). They therefore require re-evaluation.

Public Works Area Buildings (Buildings N45, N46, N46A, N49, N51, N147, N202, N213, N214, and N214A; Adjacent to Nicktown Phase II Road Repairs; Undetermined NRHP Eligibility): These buildings are clustered around Durham Circle, the primary public works area on NBVC SNI. The public works area was originally intended to be the housing and recreation area for enlisted men on NBVC SNI. When it was first developed in 1943, barracks, showers, latrines, and recreation and mess facilities dominated the area. After it regained possession of the island in 1944, the Navy continued to use the area for housing until the mid-1950s, when the area was converted to its present use. Building N45, built in 1960,

and Building N46, built in 1954, are expendable material processing facilities. Building N46A is a shed behind Building N46. Building N49 is a two-bay garage used for storing heavy equipment. It was built in 1958. Building N51 is a battery shop that has been modified since its construction in 1967. Building N147 serves as public works offices and a maintenance shop, built in 1957. Building N202 is a vehicle wash rack, according to official station records, but no building with that number exists. Instead, there is a washrack facility in the public works area with the number N203, which does not exist in the facility records. It is therefore presumed that the two buildings are the same and the discrepancy is a typographical error or misnumbering of the building. It was built in 1964. Building N213 is a lumber storage shed built in 1954 behind Building N46. Buildings N214 and N214A are small sheds used for storing flammable materials, both constructed in 1956. All 10 buildings were evaluated in 1998 as NRHP-ineligible based on their young age (JRP 1998e). They have since reached the 50-year threshold for NRHP eligibility and require re-evaluation.

Quarters Buildings (Buildings N57, N59, N99, N109, N118, N126, N150, N181, and N191; Adjacent to Nicktown Phase II Road Repairs; Various NRHP Eligibility): These are all quarters buildings in the Nicktown area of NBVC SNI. Buildings N126, N150, N181, and N191 are nearly identical and have all undergone recent renovations. Building N126 is the oldest, built in 1956, and represents some of the earliest permanent construction on NBVC SNI. Building N150 was built in 1957, and Buildings N181 and N191 in 1959. Building N109 was built in 1968 and includes a chapel in the southern end. Building N99 was built in 1971 of modular construction. Buildings N57 and N59 are nearly identical civilian quarters built in 1991. Building N118 is the most recent quarters building constructed on NBVC SNI. All nine buildings were evaluated in 1998 as NRHP-ineligible based on their young age (JRP 1998f). Buildings N126, N150, N181, and N191 have since reached the 50-year threshold for NRHP eligibility and require re-evaluation. Buildings N57, N59, N99, N109, and N118 are still considered NRHP-ineligible.

Safety/Security Buildings (Buildings N144, N158, and N211; Owen Road and Monroe Drive Phase I Road Repairs; Undetermined NRHP Eligibility): These buildings provide physical security to NBVC SNI. Buildings N144 and N158 are the aircraft fire and rescue station and the structural fire station for the island. Building N144 was originally a missile project building built in 1957. Building N158 was built in 1958. Building N211, originally a photography building, was constructed in 1961. The three buildings were evaluated in 1998 as NRHP-ineligible based on their young age (JRP 1998g). They have since reached the 50-year threshold for NRHP eligibility and require re-evaluation.

Shop Buildings (Buildings N187 and N265; Owen Road Phase I Road Repairs; Various NRHP Eligibility): The buildings are two adjacent shop buildings along Owen Road. Building N187 was built in 1961 and currently serves as the electronics maintenance shop. Buildings N265 is a shop and storage facility constructed in 1965. Both buildings were evaluated in 1998 as NRHP-ineligible based on their young age (JRP 1998h). Building N187 has since reached the 50-year threshold for NRHP eligibility and requires re-evaluation. Building N265 remains NRHP-ineligible

Utility Buildings (Buildings N111A, N114, N128, N197, and N228; Airfield, Nicktown and Public Works Storage Yard Phase II, and Owen Road Phase I Road Repairs; Various NRHP Eligibility): These utility buildings are located at various sites around NBVC SNI. The category includes power plants, generators, transformers, the telephone exchange, and the incinerator. Building 111A is a small emergency generator shelter, built in 1990, adjacent to Building N111. It is located in Nicktown. Building N114 is an electrical plant, which provides much of the power for NBVC SNI and was recently re-sided. It was constructed in 1951 along Owen Road. Building N197 is a transformer vault built near the flightline in 1961. Building N128 was constructed by station labor in 1952 as a fireproof telephone exchange in the Public Works Storage Yard west of Nicktown. The building has doubled in size since its original construction. Building N228 is an incinerator east of Nicktown built in 1993. All five buildings were evaluated in 1998 as NRHP-ineligible based on their young age (JRP 1998i). Buildings N114, N197, and N128 have since reached the 50-year threshold for NRHP eligibility and require re-evaluation. Buildings 111A and N228 are still considered NRHP-ineligible.

Water System (Buildings N50, N92, N103, N104, N120, N120A, N121B, N129, N130, N131, N132, N133, N134, N159, N160, N161, N196, N198, N199, N200, N280, N282, N299, and R4; Tufts Road Phase II and Owen Road Phase I Road Repairs, Airfield Repairs, and Coast Guard Beach Barge Landing Site; Various NRHP Eligibility): NBVC SNI has three native water sources: catchments, wells, and a desalination plant. The catchments and wells provide the major portion of fresh water on the island. Catchments designed to capture underground water seepage and spring water include small dams, underground sumps, and underground perforated tanks. Wells are located at various sites around the island. Buildings N50 (constructed 1977), N196 (constructed 1963), and N199 (constructed 1952), along with several unnumbered tanks, make up the desalination plant complex located along Beach Road near the Coast Guard Beach barge beach landing site. Buildings N131, N132, N133, and N134 are wells with pumphouses built in 1951 along Tufts Road. Buildings N159 and N160 are nearly identical pumping stations built in 1957. Buildings N120 (demolished since recordation and NRHP-eligibility assessment),

N120A (constructed 1956), N161 (constructed 1957), and N299 (constructed 1987) are also pumping stations. Building N161 does not appear in the Navy's real estate database, nor is it shown on real estate maps. The building may no longer exist (Catherine Girod, personal communication 2011). Building N198 is a small water treatment plant and pumphouse constructed in 1994. Buildings N92, N103, N104, N121B, N129, N130, N200, N280, N282, and R4 are storage tanks installed between 1947 and 1985. The building record does not indicate when each building was built during this period of time. Building N121B is located adjacent to the airfield. Buildings along Owen Road include N92, N104, N129, N160, N200, N280, N282, N159, and R4. Buildings along Tufts Road include N120A, N130, N131, N132, N133, N134, N198, and N299. Building N130 is the only building that was more than 50 years old when the water system facilities were evaluated in 1998. It was evaluated as NRHP-ineligible. The remaining water system buildings were evaluated as NRHP-ineligible based on their young age at the time (JRP 1998j). Buildings N131, N132, N133, N134, N159, N160, N161, and N199 have since reached the 50-year threshold for NRHP eligibility and require re-evaluation. Similarly, Buildings N92, N103, N104, N121B, N129, N130, N200, N280, N282, and R4 were built sometime between 1947 and 1985, making some NRHP-eligible and some not. Buildings N50 and N196 remain NRHP-ineligible.

World War II Buildings (Buildings N60, N66, N67, N71, and N72, and Crew Shed by Building N146; Nicktown Phase II Road Repairs and Airfield Repairs; NRHP-Ineligible): These buildings are WWII-era, Navy-built resources on NBVC SNI. They include several large Quonset huts, two garages, two water pumping stations, and an unnumbered crew shed. Buildings N60, N66, and N67 are Quonset Huts built in 1944. Buildings N71 and N72 are garages built in 1944. The crew shed is one of several that were built in 1945 by the Navy for use in the airfield area. The unnumbered one near Building N146 appears to be the last remaining example of these. Buildings located in Nicktown are N60, N71, and N72, while Buildings N66, N67, and the crew shed are in the airfield. The six Navy-built WWII-era buildings and structures were evaluated in 1998 as NRHP-ineligible (JRP 1998k).

3.3.2 Environmental Consequences of the Proposed Action

Given that the undertaking might affect only those portions of the following archaeological sites that have been previously disturbed (on the surface and in depth), no new impacts on NRHP-eligible or unevaluated archaeological sites are anticipated: (a) Two NRHP-eligible archaeological sites, CA-SNI-21 and CA-SNI-344; (b) Five archaeological sites of undetermined NRHP eligibility, CA-SNI-29, CA-SNI-33, CA-SNI-109, CA-SNI-112, and CA-SNI-303; (c) One NRHP-eligible archaeological site CA-SNI-38 (located adjacent to the Daytona Beach Barge Landing Site); (d) Four NRHP-ineligible archaeological sites, CA-

SNI-78, CA-SNI-261, CA-SNI-361, and CA-SNI-385 (adjacent to project activities for the Proposed Action); and (e) Two NRHP-ineligible sites, CA-SNI-26 and CA-SNI-384.

One NRHP-eligible built environment resource, 22 ineligible buildings and structures, and 54 buildings and structures of undetermined eligibility are adjacent to project activities for the Proposed Action. Roads, surface, and culvert repairs are not expected to adversely affect these resources, as disturbance would be limited to the beach, road, and airfield surfaces only. No buildings or structures would be demolished. Since no new permanent facilities are being constructed, no effects to the historic landscapes of these built environment resources are anticipated.

Although no adverse effects to cultural resources are anticipated as a result of the undertaking, impacts may still occur. These impacts may include unanticipated discoveries of unrecorded resources, inadvertent discoveries of human remains or associated grave goods, or simply impacts caused by unaware construction workers.

Minimization measures CULT-1 through CULT-5, listed in Chapter 2, would avoid any unanticipated effects to cultural resources. These measures include archaeological monitoring, flagging and avoidance of sensitive cultural resources, and stop-work orders in the event that cultural resources are discovered during construction.

Based on the data provided by the NBVC cultural resources staff and with implementation of the Navy-identified BMPs, implementation of the Proposed Action is not expected to cause short- or long-term impacts to any historic properties. If no earth-disturbing activities are to occur outside of the proposed APE during construction, and if proper provisions are implemented to preclude any increase in erosion during and after the undertaking is complete, no additional protective measures would be required. The Proposed Action would comply with applicable laws, including Native American Graves Protection and Repatriation Act. Therefore, there would be no significant impacts to cultural resources from the implementation of the Proposed Action.

3.3.3 Environmental Consequences of Alternative 2

Potential impacts on cultural resources under Alternative 2 would be identical to impacts under the Proposed Action. Therefore, there would be no significant impacts to cultural resources from the implementation of Alternative 2.

3.3.4 Environmental Consequences of Alternative 3

Impacts to cultural resources under Alternative 3 would be identical to impacts under the Proposed Action. Therefore, there would be no significant impacts to cultural resources from the implementation of Alternative 3.

3.3.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, roads and airfield repairs would not be conducted. Therefore, there would be no significant impact to cultural resources under the No-Action Alternative.

3.3.6 Mitigation Measures

With implementation of minimization measures CULT-1 through CULT-5, impacts on cultural resources would be less than significant. Therefore, mitigation measures would not be required.

3.4 GEOLOGY AND SOILS

3.4.1 Affected Environment

Geology

NBVC SNI is underlain by the Franciscan formation, which consists of a variety of rocks, including deep-marine sedimentary rocks and metamorphosed igneous rock (U.S. Navy 2010a). Eocene marine terraces on NBVC SNI were formed as a result of sea level changes and tectonic uplift. Alternating layers of Tertiary marine sandstone and siltstone underlie both dune sands and marine terrace deposits.

Topography

NBVC SNI is approximately 10 miles long and 3 miles wide. NBVC SNI has a low table-like profile; its topography is dominated by a broad central terrace or mesa approximately 6.2 miles long and 2 miles wide, with no distinctive peaks but with steep slopes to the ocean. The central mesa slopes gently to the northeast from the highest points, which are near the south rim of the terrace. The average surface elevation on NBVC SNI is 500 feet above mean sea level (amsl), with a maximum elevation of 908 feet amsl at Jackson Hill, located near the southern rim of the mesa. Submerged marine terraces, with an average depth of 350 feet below mean seal level, flank the majority of the shoreline surrounding NBVC SNI (U.S. Navy 2010a).

Soils and Potential for Soil Erosion

The central and northeastern parts of the island are covered by marine terrace deposits, and the western end of the island is covered by deep (up to 75 feet thick) dune sand deposits composed of wind-transported medium grain sand (U.S. Navy 2010a). Marine terrace deposits are composed of unconsolidated clayey, silty sands. Some of these are cemented together by caliche, a cement-like calcium carbonate deposit formed by the downward percolation of rainwater. The rest of NBVC SNI is covered with sandy loams. Sandy beaches are scattered along the coast.

The U.S. Department of Agriculture mapped 27 soil units on NBVC SNI, including Dune Land and Ustipsamments units, which are primarily concentrated in the westernmost portion of NBVC SNI; beach and dune sand; Jehemy clay; several sandy loams and loamy sands; rock outcrops; eroded channeled and gullied complexes, which comprise steep slope areas, particularly along the south shore; and Vizcapoint sandy loam (2 to 9 percent slopes) distributed along the central plateau. Rock outcrops (3,700 acres), Vizcapoint severely eroded land complexes (1,270 acres), dune land (1,160 acres), and Vizcapoint sandy loam (1,080 acres) were identified as the most common soil types on NBVC SNI (U.S. Navy 2010a).

NBVC SNI soils differ largely as the result of the varied terrain and generally form a thin layer over bedrock material (U.S. Navy 2010a). Most soils on NBVC SNI are highly susceptible to erosion by wind and are moderately erodible by water (U.S. Navy 2010a). Erosional forces from seasonal rainfall and consistent northwest winds in conjunction with grazing effects have facilitated the loss of surface soil particles to the adjacent nearshore waters, especially along the steep southern edge of the island (U.S. Navy 2010a). The majority of the soils on NBVC SNI are rated as severely limiting for construction of buildings and roads (U.S. Navy 2010a).

Soils at Daytona Beach are classified as beach and dune land soils (U.S. Navy 2002a). Runoff on beaches is slow to very slow, and the potential for water and wind erosion is high. Dune land soils are defined as undulating and sloping to moderately steep sandy areas composed mostly of sand that has been deposited by wind.

The current barge landing site lies at the eastern end of Daytona Beach and is approximately 245 feet wide. The beach is typically devoid of rocks, and the few that are encountered are generally small, heavily sand-scoured, and subject to periodic burial.

The ocean floor off the Daytona Beach area is absent of any observed rock formations and is composed of sand. The beach area receives a large amount of wave energy from incoming swells, depositing large amounts of beach sand on the ocean floor. A rock substrate exists at the east end of the beach.

Coast Guard Beach soils are similar to those on Daytona Beach and are also classified as beach and dune land soils, composed of fairly coarse sand with little rock. The sandy beachfront is wide and has been previously disturbed.

The ocean floor at Coast Guard Beach contains a shallow tidal area and a gradual slope to the sea. Strong longshore currents produce a large amount of sand transport that enables the ocean floor to remain sandy without any known reefs or rock outcroppings.

Landslides

Because of the steep slopes from the mesa to the ocean, there is the potential for landslides to occur along the perimeter of the mesa. However, there are no known landslides in the proposed project area (U.S. Navy 2010a).

Paleontology

Fossils occur throughout the Eocene sedimentary units and marine terrace deposits on NBVC SNI, and thus occur extensively throughout surface and subsurface units (NAVFAC Southwest 2010). The fossils of the Eocene rocks are predominantly foraminifera (a species of plankton) and can be correlated with those of other geologic formations throughout Southern California. Fossils of the marine terrace deposits consist of more than 250 species of mollusks and other invertebrates. These assemblages are presumed to occur throughout all the marine terraces on NBVC SNI and are unique in their completeness (NAVFAC Southwest 2010).

3.4.2 Environmental Consequences of the Proposed Action

Grading during construction of the Proposed Action has the potential to cause erosion on site. However, with implementation of the erosion control measures contained in minimization measure SWPPP-1, short-term impacts on geology and soils would be less than significant. In addition, ground disturbance would be minimized to the maximum extent possible by locating staging areas in previously disturbed or paved areas.

The proposed project components are not located in known landslide areas; however, several culvert repairs would be conducted in drainage areas that have undergone extreme headcutting because of undersized and damaged culverts. The proposed culvert repairs would result in a substantial improvement to these drainages, which would result in less erosion from these areas over the long term; therefore, the long-term impact of the Proposed Action would be beneficial.

Under the Proposed Action, landing the tender barge on the beach could disturb an approximate 100-foot-wide section of sandy beach at both Daytona Beach and Coast Guard Beach below the high tide line. Assuming that the 60-foot tender barge is pushed up onto the beach approximately 20 feet and would result in a disturbance of approximately 2 feet deep, the tender barge would disturb approximately 4,000 cubic feet, or 148 cubic yards, of sand per landing. The barge would be landed at the same spot during each beach landing (for either beach), which would minimize the footprint of disturbance. Regular wave disturbance and cycles of erosion and deposition of sand at either beach would be expected to be much greater than this level of disturbance. In addition, heavy equipment would be used to regrade the sand back to its original topography after the landing operation is completed for the day. Therefore, the temporary nature of this disturbance and the relatively small volume of sand that is disturbed would not result in significant impacts on coastal sediment processes. Short-term impacts would be less than significant.

The footprint of disturbance of the Proposed Action would occur in areas that have previously undergone ground disturbance. Therefore, it is not anticipated that any paleontological resources would be disturbed by the project. However, there is always the chance that paleontological resources would be discovered during construction. Minimization measure PALEO-1 would ensure that construction workers are trained in the identification of significant paleontological resources and would stop work and contact the NBVC staff if these resources are discovered during construction. Therefore, implementation of the Proposed Action would have no significant impact on paleontological resources.

Under the Proposed Action, no significant short-term impacts would occur to geology and soils. Long-term impacts to geology and soils would be beneficial.

3.4.3 Environmental Consequences of Alternative 2

Impacts on geology and soils under Alternative 2 would be similar to impacts under the Proposed Action, except that only one beach would be affected (Daytona Beach) rather than two beaches. Therefore, under Alternative 2, there would be no significant short-term impacts and a net beneficial long-term impact to geology and soils.

3.4.4 Environmental Consequences of Alternative 3

Impacts on geology and soils under Alternative 3 would be similar to impacts under the Proposed Action, except that only one beach would be affected (Coast Guard Beach) rather than two beaches. Therefore, under Alternative 3, there would be no significant short-term impacts and a net beneficial long-term impact to geology and soils.

3.4.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, roads and airfield repairs would not be conducted. There would be no significant impacts to geology and soils under the No-Action Alternative.

3.4.6 Mitigation Measures

With implementation of minimization measures SWPPP-1 and PALEO-1, impacts on geology and soils would be less than significant. Therefore, mitigation measures would not be required.

3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

3.5.1 Affected Environment

Installation Restoration Program

The Installation Restoration Program at NBVC SNI was initiated after an Initial Assessment Study had been completed for Naval Air Station Point Mugu in September 1985. NBVC SNI was included in the NBVC Point Mugu Initial Assessment Study and continues to be a part of the Installation Restoration Program at, and under the responsibility of, NBVC. There are no active Installation Restoration Program sites on NBVC SNI; other sites have been identified in the past, but have been closed after remediation (U.S. Navy 2010b).

3.5.2 Environmental Consequences of the Proposed Action

Hazardous materials used in conjunction with the Proposed Action would typically involve commonly used construction materials and fuel and lubricants for associated construction equipment. The use or storage of significant quantities or concentrations of extremely hazardous substances would not be anticipated. Minimization measure SWPPP-1 would ensure that proper procedures are used to store, use, and dispose of these materials during construction.

The project would not involve the generation of hazardous waste and there are no active Installation Restoration Program sites on NBVC SNI. There is a risk of the sinking of the tugboats and barges offshore of NBVC SNI; however, the shipping barge would be anchored off shore in areas where large barges either currently anchor (Coast Guard Beach) or have anchored in the past (Daytona Beach), and there have been no incidents of sinkings. Therefore, the risk of the tugboats and barges sinking is small. In addition, safety guidance and emergency response procedures are in place in the *Oil and Hazardous Substance Integrated Contingency Plan* prepared for NBVC SNI (U.S. Navy 2006). Therefore, implementation of the Proposed Action would have no significant impacts on hazardous materials and hazardous waste management.

3.5.3 Environmental Consequences of Alternative 2

Impacts would be similar to those under the Proposed Action and therefore, there would be no significant short- or long-term impact on hazardous materials and hazardous waste management from the implementation of Alternative 2.

3.5.4 Environmental Consequences of Alternative 3

Impacts would be similar to those under the Proposed Action and therefore, there would be no significant short- or long-term impact on hazardous materials and hazardous waste management from the implementation of Alternative 3.

3.5.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, no roads and airfield repairs would be conducted. Therefore, there would be no significant short- or long-term impact to hazardous materials and hazardous waste management from implementation of the No-Action Alternative.

3.5.6 Mitigation Measures

No impacts to hazardous materials and hazardous waste management would occur from the Proposed Action or alternatives. Therefore, no mitigation measures are required.

3.6 HUMAN HEALTH AND SAFETY

3.6.1 Affected Environment

Explosive Ordnance

Because of its strategic location, NBVC SNI can be used to mimic shipboard launches of missiles and targets. Island facilities support all aspects of range operations, such as missile and target launches. Two Explosive Safety Quantity Distance zones associated with explosive ordnance storage and handling facilities, corresponding with the Alpha Launch Complex and an Explosive Ordnance Disposal site, occur over proposed road repairs along Jackson Highway and Tufts Road and near the intersection of Jackson Highway and Shannon Road (U.S. Navy 2010b). There are also two Explosive Safety Quantity Distance zones at either end of the airfield runway and one Explosive Safety Quantity Distance zone at Daytona Beach.

Electromagnetic Radiation

Electromagnetic radiation emissions on NBVC SNI cause concern in terms of Hazards of Electromagnetic Radiation to Personnel and Hazards of Electromagnetic Radiation to Ordnance. Within a Hazards of Electromagnetic Radiation to Ordnance zone, there is the risk of unintentional actuation of electro-explosive devices or otherwise electrically activating ordnance because of radio frequency electromagnetic fields. Sources of emissions for Hazards of Electromagnetic Radiation to Personnel zones include radars, transmitters, relay links, transmitting antenna fields, and a command destruct system and there are several sources for Hazards of Electromagnetic Radiation to Ordnance zones on NBVC SNI (U.S. Navy 2010b). A large Electromagnetic Radiation Hazard zone occurs over most of the proposed road repairs along Jackson Highway, Shannon Road, and Tufts Road (U.S. Navy 2010b). In order for a Hazards of Electromagnetic Radiation to Personnel condition to exist on NBVC SNI, personnel would have to move into a volume of space illuminated by an emitting system (i.e., a person would need to be on a tower, building roof, or suspended in free space 20 feet (6 meters) or more in the air) (U.S. Navy 2010b).

Missile Launch Areas

Missile launch areas are located on the west end of NBVC SNI and missiles are launched from the island in a northwest and southwest direction. The nearest missile launch area is the Alpha Launch Complex located between Jackson Highway and Tufts Road. In addition to launch areas at NBVC SNI, a missile recovery (drop zone) area is located south of Monroe Drive (U.S. Navy 2010b). Missiles land here by means of parachute, then ground crews pick up the missiles with assistance of a truck or helicopter.

Wildland Fire

There have been previous fires on NBVC SNI, but not many. There are risks associated with military mission activities, including the possibility of wildland fire ignitions. For example, the missile launch facilities on the western end of NBVC SNI may be regarded as a potential source of wildland fire ignition because most of the fires that have occurred on NBVC SNI are associated with launching missiles. The disposal of munitions by Explosive Ordnance Disposal personnel and live fire training, although infrequent in occurrence, may also represent a potential source of wildland fire ignition at NBVC SNI. Potential wildland fire ignitions may also result from normal human activity, such as maintenance and construction, which are indirectly associated with the military mission.

The Federal Fire Department (FFD) will mobilize and respond to an incident if a fire does occur. The FFD at NBVC SNI oversees hazards and activities that may be considered as a potential source of fire ignition; it includes activities such as weapons system testing, construction and maintenance, and recreational barbecues and bonfires. Fire suppression units are notified during weapons system testing and missile launches.

3.6.2 Environmental Consequences of the Proposed Action

Preparation of an Accident Prevention Plan (APP) and Activity Hazard Analysis (AHA) is required for the Proposed Action and must be reviewed and approved by the Navy. The APP and AHA would follow the requirements of USACE Environmental Manual -385-1-1, Safety Health and Requirements Manual (USACE 2008) and, therefore, would address all health and safety issues involved with every activity and procedure used during construction of the Proposed Action. In addition, minimization measure SAF-1 would ensure that an evacuation route to the NBVC SNI airfield and pier is open at all times during construction in the event that evacuation of the island is required. The APP and AHA would address potential safety issues relating to explosive ordnance, electromagnetic radiation, missile launching areas,

and wildland fire. As a result, no significant short- or long-term impact to health and safety would occur under the Proposed Action.

3.6.3 Environmental Consequences of Alternative 2

Health and safety impacts associated with Alternative 2 would be identical to those under the Proposed Action. Therefore, there would be no significant short- or long-term impact to health and safety from implementation of Alternative 2.

3.6.4 Environmental Consequences of Alternative 3

Health and safety impacts associated with Alternative 3 would be identical to those under the Proposed Action and Alternative 2. Therefore, there would be no significant short- or long-term impact to health and safety from implementation of Alternative 3.

3.6.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, the roads and airfield repairs would not be conducted. Therefore, there would be no significant short- or long-term impact to human health and safety under the No-Action Alternative.

3.6.6 Mitigation Measures

With implementation of minimization measure SAF-1 and preparation of an APP and AHA, impacts on health and safety would be less than significant. Therefore, mitigation measures would not be required.

3.7 LAND USE AND COASTAL ZONE MANAGEMENT

3.7.1 Regulatory Setting

NBVC SNI Land Use Designations

The primary mission of NBVC SNI is "to support the primary research, development, acquisition, test, and evaluation of Air Weapons and associated aircraft systems into strike, anti-surface, and anti-air warfare aircraft within the Sea Range (part of Naval Air Weapons Center Weapons Division (NAWCWD)." The Activity Overview Plan (AOP) for SNI (NAVFAC Southwest 2010) provides an

update to the 2003 SNI Master Plan (U.S. Navy 2003). According to the AOP, there are three land use designations on NBVC SNI:

- Mission Critical;
- Mission Support; and
- Quality of Life.

Mission critical facilities and lands are those that directly support the mission of the installation and tenants. Mission support facilities and lands are those that indirectly support the mission of the installation and tenants.

Facilities and lands providing quality of life are those that support the well-being of the warfighter, including psychological and physical components. Quality of life facilities and lands include Bachelor Housing, Community Support, Medical/Dental, and Recreation.

Coastal Zone Management Act (CZMA)

The CZMA of 1972 (16 USC Section 1451) encourages coastal states to be proactive in managing coastal zone uses and resources. The CZMA established a voluntary coastal planning program and participating states submit a Coastal Management Plan to NOAA for approval. Under the CZMA, federal agency actions within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs. Each state defines its coastal zone in accordance with the CZMA. Excluded from any coastal zone are lands the use of which by law is subject solely to the discretion of the federal government or which is held in trust by the Federal government (16 USC 1453). Additionally, the Proposed Action is located in a designated security zone which is under the exclusive jurisdiction of the Navy and is not open to the public. Accordingly, although NBVC SNI land is federal government property and therefore excluded from the coastal zone, the Navy nonetheless conducted an effects analysis as part of its determination of the action's effects for purposes of federal consistency review under the CZMA. This was done to factually determine whether the action (even if conducted entirely within a federal enclave) would affect any coastal use or resource.

Coastal Consistency Determinations must be completed for all federal actions conducted within or potentially affecting coastal resources within the coastal zone pursuant to the CZMA and following the

procedures outlined in the NOAA's Federal Consistency Regulations (15 CFR 930). A Negative Determination would be prepared if a proposed action would not affect coastal resources. As required by 15 CFR § 930.57(b), the Navy must prepare and submit a Coastal Consistency Determination to the Coastal Commission for projects requiring a Coastal Consistency Determination that contains findings that the proposed project is consistent with the enforceable policies of the California Coastal Act to the maximum extent practicable. The NEPA document for the project is incorporated by reference into the Coastal Consistency Determination and provides the basis for this finding.

3.7.2 Affected Environment

NBVC SNI Land Uses

Development on NBVC SNI is concentrated in the Community Support Area, Public Works, and Airfield areas (NAVFAC Southwest 2010). RDAT&E facilities and Ordnance facilities are scattered throughout the central and northwestern parts of NBVC SNI. Along with the Range Operations, an Archaeology and Biology Laboratory is located on NBVC SNI. These facilities are located near the end of Owen Road approximately 1 mile northwest of the Community Support Area and Public Works areas, on the northern side of the island.

Mission-critical functions at NBVC SNI include Airfield Operations and RDAT&E Operations, as described below. Because of its isolated location, NBVC SNI relies on the airfield operations to accommodate daily living and to support the military operations at NBVC SNI. As far as RDAT&E operations, the ridge that forms the spine of the island is devoted, for the most part, to range instrumentation facilities of the Range Operations Department of the Point Mugu Sea Range. There are also several antennas associated with communications and radar facilities scattered throughout the island. There are no officially designated missile ranges on NBVC SNI, but missile range operations can be grouped into a few key locations.

Mission support functions on NBVC SNI include Administration, Communications (non-RDAT&E), Circulation, General Maintenance, Public Safety, Supply, Utilities, Vehicle Maintenance, and Weapons. Mission support facilities are generally located in Nicktown, with the exception of the supply pier, located off Daytona Beach, and the RO plant at Beach Road above Coast Guard Beach.

Coastal Zone

NBVC SNI encompasses approximately 14,230 acres and is the most northwesterly of the four southern Channel Islands. Only authorized military personnel or contractors are permitted access on the island; no public access is permitted on NBVC SNI.

As defined in Section 304 of the California Coastal Act, the term "coastal zone" does not include "lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government." NBVC SNI is owned and operated by the Navy as a major element of the Point Mugu Sea Range and is therefore excluded from the coastal zone. The coastal zone surrounding NBVC SNI extends 3 nautical miles seaward from the high tide line and is under the jurisdiction of the State of California. The waters surrounding the islands have been designated by the state as Areas of Special Biological Significance (ASBS) in recognition of the high quality of the marine ecosystems.

3.7.3 Environmental Consequences of the Proposed Action

The proposed airfield repairs are identified as mission critical in the AOP. In addition, the proposed road repairs are identified in the AOP as a mission support project. Repair of the airfield and construction of new shoulders would also ensure that the airfield is in compliance with Federal Aviation Administration (FAA) regulations and that the airfield is safe to land aircraft. Therefore, the Proposed Action would be consistent with the AOP and its land use designations.

Repairs to the runway would result in temporary closure of the runway and is anticipated to last no longer than 2 weeks. During this time, the normal supply barge operations would be required to supply the island with materials and supplies. Given the short-term duration of this closure, it is not expected to significantly affect the mission on the island. The repairs would benefit the mission, by ensuring safe conditions and the long-term continued use of the airfield.

Surface degradation of Beach Road may occur over the duration of the Proposed Action, due to an increase in traffic associated with aggregate delivery. Spot repairs (pothole or other surface degradation repair) would be conducted while one traffic lane remained open, to avoid impacts to mission support supply functions. Therefore, repairs conducted at Beach road would not significantly affect the Navy's mission on SNI.

The Navy has analyzed the potential effects of the Proposed Action by evaluating reasonable foreseeable direct and indirect effects on coastal uses and resources. As discussed in other sections of this document, impacts on biological resources, cultural resources, paleontological resources (discussed under geology and soils), recreation, and water quality are less than significant with implementation of minimization measures listed in Chapter 2. Therefore, the Proposed Action would also be consistent with the California Coastal Act policies listed above, and would have no significant short- or long-term impact on coastal zone uses or resources.

3.7.4 Environmental Consequences of Alternative 2

Similar to the Proposed Action, Alternative 2 would be consistent with the AOP and its land use designations.

Alternative 2 would physically result in slightly less impacts on biological resources, recreation, and water quality because only one beach would be used for barge landings, rather than two. Therefore, with implementation of minimization measures, Alternative 2 would result in no significant short- or long-term impacts to coastal zone uses or resources.

3.7.5 Environmental Consequences of Alternative 3

Similar to the Proposed Action and Alternative 2, Alternative 3 would be consistent with the AOP and its land use designations.

Similar to Alternative 2, Alternative 3 would physically result in slightly less impacts on biological resources, recreation, and water quality, because only one beach would be used for barge landings, rather than two. Therefore, with implementation of minimization measures, Alternative 3 would result in no significant short- or long-term impacts to coastal zone uses or resources.

3.7.6 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, roads and airfield repairs would not be conducted; therefore, there would be no impacts on the coastal zone. There would be no significant short- or long-term impacts to land use and coastal zone management under the No-Action Alternative.

3.7.7 Mitigation Measures

Under the Proposed Action and Alternatives 2 and 3, with implementation of minimization measures for protection of biological resources, cultural resources, paleontological resources, and water quality, impacts on land use would be less than significant; therefore, no mitigation measures would be required.

3.8 NOISE

Noise impacts on humans are discussed in this section. Noise impacts on wildlife are discussed in Section 3.2, Biological Resources.

3.8.1 Noise Terminology

Sound is caused by vibrations that generate waves of minute air pressure fluctuations in the air. Air pressure fluctuations that occur from 20 to 20,000 times per second can be detected as audible sound. The number of pressure fluctuations per second is normally reported as cycles per second or Hertz (Hz). Different vibrational frequencies produce different tonal qualities in the resulting sound. In general, sound waves travel away from the noise source as an expanding spherical surface. The energy contained in a sound wave is consequently spread over an increasing area as it travels away from its source, resulting in a decrease in loudness at greater distances from the noise source.

Human hearing varies in sensitivity to different sound frequencies. The ear is most sensitive to sound frequencies between 800 and 8,000 Hz, is less sensitive to higher and lower sound frequencies, and is least sensitive to sound frequencies below 250 Hz. Several different frequency weighting schemes have been developed to approximate the way the human ear responds to noise levels or to account for the response of building materials to airborne vibrations and sound. The most commonly used decibel weighting schemes are the A-weighted and C-weighted scales.

The "A-weighted" decibel scale (dBA) is normally used to approximate human hearing response to sound. The A-weighted scale significantly reduces the measured pressure level for low frequency sounds while slightly increasing the measured pressure level for some middle frequency sounds. The "C-weighted" decibel scale (dBC) is often used to characterize low frequency sounds capable of inducing vibrations in buildings or other structures. In general, a fluctuation in sound of 1 dBA is noticeable only under laboratory conditions and a change of 3 dBA is just noticeable in field conditions.

Varying noise levels are often described in terms of the equivalent constant decibel level. Equivalent noise levels (Leq) are used to develop single-value descriptions of average noise exposure over various periods of time. These average noise exposure ratings often include additional weighting factors for annoyance potential based on time of day or other considerations. The Leq data used for these average noise exposure descriptors are generally based on A-weighted sound level measurements, although other weighting systems are used for special conditions (such as blasting noise).

Average noise exposure over a 24-hour period is often presented as a community noise equivalent level (CNEL). CNEL values are calculated from hourly Leq values, with the Leq values for the evening period (7 p.m. to 10 p.m.) increased by 5 dB and the Leq values for the nighttime period (10 p.m. to 7 a.m.) increased by 10 dB to reflect the greater disturbance potential from evening and nighttime noises. Day-night noise level (Ldn) values are computed in a way that is similar to CNEL, except that there is no weighting factor for evening noise levels. As a practical matter, CNEL and Ldn values are often treated as being interchangeable. Unless specifically noted otherwise, CNEL and Ldn values are assumed to be based on dBA measurements.

Noise attenuates with distance from the source. Specifically, noise attenuates by 6 dB each time the distance from the source is doubled for stationary noise point sources.

3.8.2 Affected Environment

NBVC SNI is a remote, isolated environment that is partially developed for training operations scattered about the island and includes a consolidated community area in Nicktown. NBVC SNI is sparsely populated, with up to approximately 200 people during the weekday and fewer on weekends. The predominant background noise sources at NBVC SNI are aircraft operations at the airfield, vehicle traffic, various military operations at designated training areas, and occasional barge traffic at Daytona Beach.

The only sensitive noise receptors on NBVC SNI include lodging for employees and temporary lodging for visitors. The nearest potential sensitive noise receptors to the proposed project activities are located in Nicktown approximately 50 feet away from proposed road repairs within Nicktown itself, and approximately 1 mile from the proposed asphalt batch plant at Coast Guard Beach.

3.8.3 Environmental Consequences of the Proposed Action

Sensitive human receptors (civilian quarters and transit quarters) are located approximately 1 mile away from the asphalt batch plant. Therefore, noise from this source would not result in greater than 65 dBA CNEL. However, civilian and transit quarters are located within 50 feet of proposed road repairs in Nicktown. According to U.S. EPA guidelines (U.S. EPA 1971), average construction noise is 95 dBA at a 50-foot distance from the source. Noise impacts on these receptors would be reduced to less than significant by implementation of minimization measure which would ensure that construction in Nicktown is conducted only on Monday through Friday from 8 a.m. to 5 p.m. In addition, building construction materials are expected to provide some insulation to construction noise. With implementation of minimization measure NOISE-1 and the short-term nature of construction, impacts would be less than significant. Therefore, the Proposed Action would have no significant impact on noise.

3.8.4 Environmental Consequences of Alternative 2

Under Alternative 2, noise impacts on sensitive human receptors would be identical to those under the Proposed Action. Therefore, implementation of Alternative 2 would have no significant short- or long-term impact on noise.

3.8.5 Environmental Consequences of Alternative 3

Under Alternative 3, noise impacts on sensitive human receptors would be identical to those under the Proposed Action. Therefore, implementation of Alternative 3 would have no significant short- or long-term impact on noise.

3.8.6 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, no roads and airfield repairs would be conducted. Therefore, no significant short- or long-term impact to noise would occur from implementation of the No-Action Alternative.

3.8.7 Mitigation Measures

With implementation of minimization measure NOISE-1, noise impacts would be less than significant. Therefore, mitigation measures would not be required.

3.9 RECREATION

3.9.1 Affected Environment

Recreational fishing by active duty or civilian personnel occurs at Coast Guard Beach from the jetty and from the shore. Coast Guard Beach is open for recreational opportunities only from September 15 to December 31 and can be closed earlier in December depending on when elephant seals begin to have their pups.

At Daytona Beach, recreational fishing occurs from the pier, along the shore, or from the rocks just east of Daytona Beach. Daytona Beach is closed year-round west of the pier. Daytona Beach east of the pier is closed December 15 to April 15 as well as June through July to correspond with the timing of breeding elephant seals and sea lions on the beach.

Commercial passenger fishing vessels intermittently offer 1-to 2-day sport fishing excursions either from the Ventura or Port Hueneme harbor (U.S. Navy 2010a). SCUBA diving at NBVC SNI takes place on occasion and is most common in conjunction with the beginning of lobster season (Saturday preceding the first Wednesday in October) (U.S. Navy 2010a).

3.9.2 Environmental Consequences of the Proposed Action

Barge beach landings would interfere with recreational use of Daytona Beach and Coast Guard Beach in the immediate area of the landings. However, these landings would not significantly affect recreational use of the beaches because the beach landing operations would occur over only a few days for each delivery. Therefore, implementation of the Proposed Action would have no significant short- or long-term impact on recreation.

3.9.3 Environmental Consequences of Alternative 2

Implementation of Alternative 2 would have a slightly less impact on recreation because only one beach would be affected by the project, rather than two. Therefore, implementation of Alternative 2 would have no significant short- or long-term impact on recreation.

3.9.4 Environmental Consequences of Alternative 3

Implementation of Alternative 3 would have a slightly less impact on recreation because only one beach would be affected by the project, rather than two. Therefore, implementation of Alternative 3 would have no significant short- or long-term impact on recreation.

3.9.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, no roads and airfield repairs would be conducted. Therefore, there would be no significant short- or long-term impact to recreation under the No-Action Alternative.

3.9.6 Mitigation Measures

Impacts on recreation would be less than significant, and no mitigation measures would be required.

3.10 SERVICES AND UTILITIES

3.10.1 Affected Environment

Water

Currently, the primary source of potable water for NBVC SNI is the RO desalination plant. Water is pumped from the RO plant to a storage tank. From the storage tank, water is pumped up to consecutive storage tank and transfer pump assemblies until it reaches the "main" storage tank area. Water is distributed from the main tank to various areas of the island (U.S. Navy 2010b).

Potable water can also be barged to NBVC SNI and offloaded at Coast Guard Beach.

Several springs on the island also provide non-potable water at variable production rates.

Wastewater

The wastewater generated by the various facilities on NBVC SNI is either collected by a sanitary sewer system and treated at the wastewater treatment facility or disposed of by using septic tanks and leach fields. The wastewater treatment facility is located at and near Building N-27 (in the southeast portion of Nicktown). Approximately 4,700 linear feet of gravity sewer lines, consisting of 8- and 6-inch mains, and appurtenant manholes make up the collection system (U.S. Navy 2010b). Thirty-eight septic tanks and leach field systems are used at those facilities that are not connected to the sanitary sewer collection

system (U.S. Navy 2010b). Two of these septic tanks and leach fields dispose the wastewater generated by the facilities located at the airfield.

Solid Waste

All residential trash, recyclable materials, and industrial waste products are shipped off the island to NBVC (U.S. Navy 2010a). From NBVC, all solid waste is sorted and disposed of at the Simi Valley landfill (U.S. Navy 2010b).

Electricity

The electricity used on NBVC SNI is generated by the Electrical Power Plant (Building 114), located just outside Nicktown. This facility houses five three-phase, 4,160-volt (V) generators (U.S. Navy 2010b). Fuel for the generators (JP-5) is stored in a 10,000-gallon aboveground storage tank to the south of Building 114 and is shipped by barge to the island. In addition to the 4,160-V generators, critical loads in some buildings have backup power from local emergency generators.

Electricity is distributed throughout NBVC SNI by three 4,160-V feeders (U.S. Navy 2010b). Feeders 1 and 2 are mostly underground. These feeders serve the north-central area of the island, including the personnel living, administration, recreational, street lighting, and public works facilities. Part of Feeder 3 serves the air terminal and its associated hangars, as well as the maintenance facilities. This distribution is overhead on wood poles supporting bare copper conductors, except for short sections. The western half of the island is served mainly by Feeder 1, with a couple of loads served by Feeder 3.

Construction of 11 wind turbines on NBVC SNI is currently being planned to supplement energy supplied by the 4,160-V generators (U.S. Navy 2010b).

Fire and Police Protection

There is one fire station on NBVC SNI, which is located in Building 144 at the airfield. This fire station is for airfield operations only and does not house fire staff, which are located within housing at Nicktown. The minimum number of designated fire staff at any given time is seven personnel (one supervisor and six firefighters). Emergency response at the airfield entails the deployment of one engine, one ambulance, and one rescue truck.

Based on the exclusive military use and limited population (about 200 individuals at any given time) at NBVC SNI, a limited designated security force is needed.

3.10.2 Environmental Consequences of the Proposed Action

Water

Approximately 1 million gallons of non-potable water would be needed for Phase I and Phase II of the road repairs and approximately 500,000 gallons of non-potable water would be needed for the airfield repairs. Therefore, over the course of 5 years, a total of 1.5 million gallons of potable water would be needed, for an estimated 300,000 gallons per year or 822 gallons per day.

Based on the variable rate of production of non-potable water from the springs on NBVC SNI, one potable water barge shipment will be made during each phase of the road repairs and again for the airfield repairs (for a total of three shipments). With these shipments, project impacts on the potable water supply on the island would be less than significant.

Construction of the Proposed Action would require a maximum of 25 construction workers on the island at any one time. This number would not significantly increase the demand for potable water on the island. Therefore, implementation of the Proposed Action would have no significant short- or long-term impact on water.

Wastewater

Construction of the Proposed Action would require a maximum of 25 construction workers on the island at any one time. This number would not significantly increase the amount of wastewater generated on the island. Therefore, implementation of the Proposed Action would have no significant short- or long-term impact on wastewater.

Solid Waste

All existing asphalt would be ground in place and reused as the new base for the road repairs and section of runway undergoing repair. Concrete debris from the old culverts that are replaced is the only solid waste anticipated to be generated by the proposed project. If possible, this material would be stockpiled

in the Monroe borrow area and would eventually be ground up and reused. Therefore, implementation of the Proposed Action would have no significant short- or long-term impact on solid waste.

Electricity

Other than use of a generator at the asphalt batch plant, the Proposed Action would not require a new supply of electricity. Therefore, there would be no significant short- or long-term impact on the supply of electricity on the island.

Fire and Police Protection

The Proposed Action would not require additional fire or police protection on the island. Therefore, implementation of the Proposed Action would have no significant short- or long-term impact on these services.

3.10.3 Environmental Consequences of Alternative 2

Impacts under Alternative 2 would be identical to those under the Proposed Action. Therefore, implementation of Alternative 2 would have no significant short- or long-term impacts to services and utilities at NBVC SNI.

3.10.4 Environmental Consequences of Alternative 3

Impacts under Alternative 3 would be identical to those under the Proposed Action. Therefore, implementation of Alternative 3 would have no significant short- or long-term impacts to services and utilities at NBVC SNI.

3.10.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, no roads and airfield repairs would be conducted. Therefore, no significant impact to services and utilities would occur from the No-Action Alternative.

3.10.6 Mitigation Measures

Because impacts to services and utilities would be less than significant, no mitigation measures would be required.

3.11 TRANSPORTATION

3.11.1 Affected Environment

There are approximately 22 miles of paved roads that generally run southeast to northwest along the long axis of the island. Monroe Drive, Beach Road, Jackson Highway, Shannon Road, and Tufts Road, Owen Road, and Skyline Drive are the primary named roadways. Approximately 12.45 miles of the paved roads are in a degraded condition, and pose a safety concern for personnel, ordnance, and operations transport. Repairs required for these sections are detailed in Chapters 1 and 2. The circulation of traffic centers around three general areas: (1) the Community Support area and Public Works areas; (2) the airfield; and (3) Test and Evaluation infrastructure on the western half of the island (U.S. Navy 2010a). A secondary traffic focus is the Beach Road access to the supply pier on the southeast coast of the island (U.S. Navy 2010a). All vehicles on the island are government-owned or controlled. Existing traffic conflicts occur only when convoys transport ordnance or other hazardous materials. Non-participating vehicles are precluded from operating along roads taken by these convoys while en route.

Transportation to and from NBVC SNI is nearly exclusively accomplished through scheduled passenger flights that bring duty personnel, researchers, or other permitted visitors to the island. The runway has sinkholes and surface deformities that pose a safety and operational hazard to daily flights integral to the Navy mission, as detailed in Chapters 1 and 2. A barge transports supplies and materials to the island weekly but is not used by personnel because of safety concerns and logistical considerations. Military personnel intermittently access the island using military aircraft, including helicopters and fixed-wing aircraft, but visits are typically short and related to specific military training operations (U.S. Navy 2010a).

3.11.2 Environmental Consequences of the Proposed Action

During the proposed road repair work, one lane of traffic would typically remain open, which would result in minimal disturbance to the flow of traffic. However, both lanes will be repaired at the same time during the repair work on some of the road sections where traffic is minimal. This would result in some short-term impacts to the flow of traffic as drivers would need to use alternate access routes. In addition, culvert repairs would require shutting both lanes down. Traffic would be re-routed where both lanes are closed. However, traffic would not be re-routed for long periods of time; therefore, impacts on circulation on the island during construction are not anticipated to be significant. During the course of the

Proposed Action an ordnance route would always remain open so that there would be no impact to ordnance and operations transport.

Repair work on the airfield would require that the runway be shut down for no more than 2 weeks. This would result in some short-term impacts to scheduling passenger flights and transport of duty personnel, researchers, and visitors. Repairs conducted at the airfield would increase safe conditions for flights. Repairs would avoid an unplanned and unscheduled closure of the runway due to damage.

During the time of airfield repairs, the island's supply barge would be the only supply mechanism for materials and supplies on the island. However, in light of the short-term nature of the repairs, reliance on the barge is not anticipated to have a significant impact on transportation to and from the island.

Finally, the tug and barge would use Vessel Traffic Separation Scheme shipping lanes; therefore, transportation of aggregate to NBVC SNI is not anticipated to interfere with marine vessel traffic. Anchoring the shipping barge at Daytona Beach would not preclude use of the pier by the supply barge regularly used by the Navy.

Potential minor impacts to transportation would occur from traffic being re-routed or reduced to one lane, and potential temporary closure of the runway, but would be short-term in duration and less than significant. Implementation of the Proposed Action will result in increased safe conditions for transportation, and will support the viability and continued use of the runway. Therefore, the Proposed Action would have a net long-term beneficial impact on transportation and would have no significant short-term impact on transportation.

3.11.3 Environmental Consequences of Alternative 2

Impacts on transportation are expected to be identical to impacts under the Proposed Action. Therefore, implementation of Alternative 2 would have no significant short-term impact on transportation, and a net beneficial long-term impact on transportation.

3.11.4 Environmental Consequences of Alternative 3

Impacts on transportation are expected to be identical to impacts under the Proposed Action. Therefore, implementation of Alternative 3 would have no significant short-term impact on transportation, and a net beneficial long-term impact on transportation.

3.11.5 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, no repairs to the roads and airfield would occur. Therefore, there would be no significant impact to transportation under the No-Action Alternative.

3.11.6 Mitigation Measures

Because impacts to transportation would be less than significant, no mitigation measures are required.

3.12 WATER RESOURCES

3.12.1 Regulatory Setting

The Federal Water Pollution Control Act of 1948 was promulgated to "enhance the quality and value of our water resources and to establish a national policy for the prevention, control and abatement of water pollution." The act was amended in 1972 and again in 1977, when it became known as the "Clean Water Act" (CWA). The amendments established a system for regulating pollutant discharges into the waters of the U.S. including (1) a permit structure designed to control and eventually eliminate pollutant discharges, (2) the requirement to develop water quality standards and pollution control programs, and (3) the requirement to implement grant programs to install infrastructure intended to prevent pollutant discharges. The CWA established the baseline goal of attaining fishable, swimmable waters throughout the United States.

In California, the Porter-Cologne Water Quality Control Act of 1962 (Porter-Cologne Act) is the principal law governing water quality in California and establishes state authority over water rights and policy. The Porter-Cologne Act designates the State Water Resources Control Board (SWRCB) as the statewide water quality planning agency and also gives authority to nine partially self-directed Regional Water Quality Control Boards.

Point source discharges, including storm water discharges, at NBVC SNI are regulated by the Los Angeles Regional Water Quality Control Board (LARWQCB). However, point source discharges to the ocean are also regulated directly by the SWRCB pursuant to the California Ocean Plan.

The following discharges are currently occurring at NBVC SNI and are regulated by the LARWQCB, as discussed in more detail below:

- Storm water discharges associated with industrial activities; and
- Point source discharges from the wastewater treatment plant.

In addition, brine from the RO plant is currently discharged to the ocean at Coast Guard Beach; the Navy is currently in discussions with the LARWQCB to obtain an NPDES permit for this disposal through an open ocean outfall (U.S. Navy 2010a).

The waters surrounding NBVC SNI to a distance of 1 nautical mile offshore or to the 300-foot isobaths, whichever is greater, have been designated as an ASBS under the California Ocean Plan, which results in a separate set of restrictions on discharges to the ocean that are regulated directly by the SWRCB, as described in more detail below.

In addition, vessel discharges are regulated by the California Clean Coast Act of 2005 (Senate Bill 771) and the International Convention for the Prevention of Pollution from Ships (MARPOL), as discussed below.

Section 10 of the Rivers and Harbors Act requires authorization from the USACE for construction of any structure in or over any navigable water of the United States, excavation and dredging or deposition of material in these waters, or any obstruction or alteration in a "navigable water." "Navigable waters" of the U.S. are those that are subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or presently used, or have been used in the past, or are susceptible for use to transport interstate or foreign commerce. Discharges of dredged or fill material into waters of the United States are also regulated under Sections 404 and 401 of the CWA, which are enforced by the USACE (Section 404) and the LARWQCB (Section 401). Under the CWA, waters of the U.S. include traditionally navigable waters, as well as relatively permanent bodies of water that are connected to navigable waters, and wetlands that have a continuous surface connection to such relatively permanent waters. Waters of the U.S. also include wetlands that have a significant nexus to traditionally navigable waters. Section 404 of the CWA defines the landward limit of jurisdiction as the high tide line (the highest tide line) in tidal waters and the ordinary high water mark as the limit in non-tidal waters. When adjacent wetlands are present, the limit of jurisdiction extends to the limit of the wetland. Compliance with these regulations is discussed under Section 3.2, Biological Resources.

Storm Water Discharges

Storm water discharges from operational activities at NBVC SNI are regulated under an NPDES General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit, NPDES General Permit No. CAS00001). The Industrial General Permit requires a SWPPP, GIS recordkeeping, wet and dry season monitoring, and an annual report to regulators with storm water sampling results.

The most recent SWPPP for NBVC SNI was published in July 2010 (U.S. Navy 2010a). The SWPPP is intended to eliminate illicit discharges, implement BMPs, require storm water monitoring, require industrial inspections, and train employees. Twenty-one outfalls are monitored quarterly during the dry season, and three locations are monitored during two storm events in the wet season. Storm water BMPs include pollutant source controls, management practices other than source controls, preventative maintenance, spill prevention and response, erosion and sediment controls, identification of storm water pollution prevention personnel, and structural controls for runoff (U.S. Navy 2010a). Personnel are trained routinely on the goals and components of the SWPPP; this training includes proper implementation of BMPs, inventory control procedures, procurement of less toxic materials, proper use and storage procedures, recycling and reuse of materials, spill response and reporting procedures, and other requirements of the SWPPP.

An NPDES General Permit for Construction Activities is also required for all construction projects equal to or greater than 1 acre in size and, therefore, would be required for the proposed project. This permit requires development of a SWPPP for construction activities, which describes BMPs to be implemented to prevent pollutant and sediment discharges from the construction site.

Wastewater Treatment Plant Discharges

Effluent discharges from the NBVC SNI Wastewater Treatment Plant are governed by a Waste Discharge Requirement issued by LARWQCB. Regular monitoring is conducted per this permit's requirements. The Navy is currently upgrading the wastewater treatment plant (U.S. Navy 2010a).

Discharges to an Area of Special Biological Significance (ASBS)

SWRCB adopted the Water Quality Control Plan for Ocean Waters of California pursuant to the Porter-Cologne Act. The amended plan (the California Ocean Plan) establishes beneficial uses and water quality

objectives for waters of the Pacific Ocean adjacent to the California coast outside of enclosed bays, estuaries, and coastal lagoons. The California Ocean Plan also establishes ASBS. An ASBS designation is based on the presence of certain species or biological communities that, because of their value or fragility, deserve special protection, including preservation and maintenance of natural water quality conditions to the extent practicable.

The California Ocean Plan requires the following for ASBSs:

> "*1. Waste shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.*
>
> *2. "Regional Boards may approve waste discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ASBS. Limited-term activities include, but are not limited to, activities such as maintenance/repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing water quality. Water quality degradation shall be limited to the shortest possible time. The activities must not permanently degrade water quality or result in water quality lower than that necessary to protect existing uses, and all practical means of minimizing such degradation shall be implemented*."

The California Ocean Plan "is not applicable to vessel wastes, or the control of dredged material," where dredged material is defined in the plan as "any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as 'spoil'."

Vessel Discharges

The California Clean Coast Act of 2005 (Senate Bill 771) prohibits the following discharges from oceangoing vessels (vessels of 300 gross registered tons or more) in state marine waters (within 3 nautical miles of shore, including offshore California islands):

- Hazardous waste (as defined by Section 25117 of the California Health and Safety Code, but does not include sewage);
- Oily bilgewater (bilgewater that contains used lubrication oils, oil sludge and slops, fuel and oil sludge, used oil, used fuel and fuel filters, and oily waste);
- Graywater (drainage from dishwasher, shower, laundry, bath, and washbasin drains, but does not include drainage from toilets, urinals, hospitals, or cargo spaces); and
- Other waste (photography laboratory chemicals, dry cleaning chemicals, or medical waste).

Discharges of sewage ("blackwater") are prohibited except for under specific conditions stipulated under MARPOL Annex IV.

3.12.2 Affected Environment

Fresh Water

NBVC SNI is located in the San Pedro Channel Islands Hydrologic Unit, which also includes Anacapa, Santa Barbara, San Clemente, and Santa Catalina islands (U.S. Navy 2010b). Several springs and Tule Creek form the freshwater sources on the island. Runoff on the island generally flows outward toward the ocean through several unnamed ephemeral streams, gullies, and washes.

Groundwater

Groundwater on the island is recharged by deep penetration of rainfall and runoff into the highly absorptive fresh dune sand at the western end, which gravity moves downward to the main water table or to impermeable zones that divert the water laterally down slope (U.S. Navy 2010a). Groundwater is discharged at the island's surface by a number of intermittent, as well as some perennial, springs and seeps concentrated along the north side of the island (U.S. Navy 2010a).

As discussed in Section 3.10, Services and Utilities, freshwater wells on the northwestern part of NBVC SNI produce approximately 600 gallons per day from a depth between 40 to 70 feet (U.S. Navy 1996). In addition to these wells, two concrete cisterns that collect spring water were reported to provide approximately 4,000 gallons per day (U.S. Navy 1996). One cistern is located at Thousand Springs, and the second is located at Zitnic Springs (near Redeye) (U.S. Navy 1996).

The Navy is currently assessing the status of groundwater resources on NBVC SNI (U.S. Navy 2010a).

Marine Environment

Daytona Beach is a moderately steep beach composed of fairly coarse sand and is located in a shallow cove approximately 1 kilometer wide (U.S. Navy 2002a). Daytona Beach is bordered on both sides by rocky reefs and is exposed to southerly wind and wave action; since it faces south, however, it is protected from the prevailing wind, sea, and swell coming from the northwest (U.S. Navy 2002a). As a result of the lack of offshore reefs, sheltering islands, or a pronounced embayment, Daytona Beach is exposed to southerly swells that at times may be very large; swells up to 7 feet have been reported (U.S.

Navy 2002a). The beach is typically devoid of rocks at the proposed barge landing site, and the few that are encountered are generally low, small, heavily sand-scoured, and probably subject to periodic burial.

Coast Guard Beach is similar to Daytona Beach. It is composed of fairly coarse sand with little rock. The general area is slightly more exposed to the prevailing northwest sea and swell than Daytona Beach, since it is on the northeast side of the island. The part of the beach that is protected by the jetty is less exposed to sea and swell arriving from the northwest.

There have been no reported spills or upset events that resulted in the discharge of toxic or otherwise prohibited substances, including untreated or partially untreated wastewater in the NBVC SNI ASBS (U.S. Navy 2010a). However, erosion and sediment input into island drainages and nearshore waters continue to be an issue. These erosion events occur primarily during seasonal rain fall events. In addition, the RO system discharges brine to the ASBS off of Coast Guard Beach under an exception to the California Ocean Plan prohibition on discharges (U.S. Navy 2010a). The exception was adopted by the SWRCB (Resolution 90-105) in 1990. The Navy's existing brine discharge line and disposal well are currently malfunctioning as a result of sedimentation and infiltration issues. Therefore, as mentioned above, the Navy is assessing alternative discharge options, primarily focusing on the evaluation of the feasibility of an open ocean outfall.

3.12.3 Environmental Consequences of the Proposed Action

Construction of the Proposed Action could affect water quality in the short-term, during the following project components:

- Transferring aggregate from the shipment barge to the tender barge;
- Disturbance of the beach when the tender barge lands on the beach;
- Reshaping the drainage ditches associated with the culvert repairs; and
- Ground disturbance associated with the airfield repairs and road repairs.

BMPs such as the use of a tarp or other catchment barrier positioned between the two barges would be used to capture accidental spillage of aggregate during the transfer from the shipment barge to the tender barge. Therefore, the Proposed Action would result in no significant impacts on water quality.

Under the Proposed Action, landing of the tender barge on the beach could temporarily disturb an approximate 100-foot-wide section of both Daytona Beach and Coast Guard Beach below the high tide line. Assuming that the 60-foot tender barge is pushed up onto the beach approximately 20 feet and would result in a disturbance of approximately 2 feet deep, the tender barge would disturb approximately 4,000 cubic feet, or 148 cubic yards of sand per landing. The barge would be landed at the same spot during each beach landing (for either beach), which would minimize the footprint of disturbance. Regular wave disturbance and cycles of erosion and deposition of sand at either beach would be expected to be much greater than this level of disturbance. This disturbance would likely increase the turbidity of the water in the immediate vicinity of the barge landing. Based on the temporary nature of this disturbance and the relatively small volume of sand that is disturbed, this activity would not result in significant water quality impacts. This activity would be subject to Sections 10 and Section 401 of the CWA.

Repairs of the culverts would involve reshaping the associated drainage ditches resulting in a benefit to water quality by decreasing the potential for erosion. Over the long term, the culvert repairs would reduce or eliminate headcutting of existing drainage ditches and associated erosion and sedimentation of ocean waters, which has been occurring as a result of the damaged and undersized culverts. Therefore, the Proposed Action would have a significant long-term benefit to ocean water quality. All of the drainage ditches that connect to the ocean are considered non-tidal waters of the United States and, therefore, subject to Sections 404 and 401 of the CWA. As a result a Finding of No Practicable Alternative is also required for the project.

Finally, ground disturbance from general construction activities associated with the road and airfield repairs have the potential to result in short-term erosion in the disturbed areas and, therefore, effects on storm water quality. However, implementation of minimization measure SWPPP-1 would ensure that a SWPPP is prepared and standard erosion control measures are implemented for the project to protect storm water quality.

The Proposed Action would not involve development of structures, and therefore would not expose the population to flood hazards.

Implementation of the Proposed Action would have no significant short-term impacts, and a net beneficial long-term impact to water resources.

3.12.4 Environmental Consequences of Alternative 2

Under Alternative 2, impacts would be the same as under the Proposed Action, except that only Daytona Beach would be disturbed during beach landings. Therefore, Alternative 2 would have no significant short-term impacts, and a net beneficial long-term impact to water resources.

3.12.5 Environmental Consequences of Alternative 3

Under Alternative 3, impacts would be the same as under the Proposed Action, except that only Coast Guard Beach would be disturbed during beach landings. Therefore, Alternative 3 would have no significant short-term impacts, and a net beneficial long-term impact to water resources.

3.12.6 Environmental Consequences of the No-Action Alternative

Under the No-Action Alternative, no roads and airfield repairs would be conducted. Therefore, there would be no significant impact to water resources under the No-Action Alternative.

3.12.7 Mitigation Measures

With implementation of minimization measure SWPPP-1, impacts would be less than significant and no mitigation measures would be required.

4.0 OTHER CONSIDERATIONS REQUIRED BY NEPA

This chapter addresses additional considerations required by NEPA, including cumulative impacts; possible conflicts between the action and the objectives of federal, regional, state, and local plans, policies, and controls; irreversible and irretrievable commitment of resources, and short-term uses versus long-term productivity.

4.1 CUMULATIVE IMPACTS

Federal law (42 USC 4321 et seq.) and Department of the Navy regulations for implementing NEPA (32 CFR 775), as described in OPNAVINST 5090.1C, require that the cumulative impacts of a Proposed Action be assessed. According to CEQ regulations, the analysis of cumulative impacts in an EA should consider the potential environmental impacts resulting from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7).

4.1.1 DEFINITION OF CUMULATIVE IMPACTS

Cumulative impacts may occur when there is a relationship between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. Actions overlapping, or in close proximity to, the Proposed Action can have more potential for cumulative impacts on "shared resources" than actions that may be geographically separated.

Similarly, actions that coincide temporally would tend to offer a higher potential for cumulative impacts. To analyze cumulative impacts, a cumulative impacts region must be identified for which impacts of the Proposed Action (as well as other action alternatives) and other past, proposed, and reasonably foreseeable actions would be cumulatively recorded or experienced. The key to an effective cumulative impact analysis is the definition of reasonable and rational boundaries to perform a meaningful and realistic evaluation.

In general, effects of a particular action or group of actions must meet all of the following criteria to be considered a cumulative impact:

- Effects of several actions occur in a common locale, or
- Effects on a particular resource are similar in time.
- In general, the effects are long-term; short-term impacts dissipate over time and soon cease to contribute to cumulative impacts.

The cumulative effects region addressed in this EA is limited to NBVC SNI, with particular emphasis on the areas potentially affected by the roads and airfield repairs project. Baseline conditions for the cumulative effects region are as described in Chapter 3 of this EA. Past, present, and reasonably foreseeable actions in the cumulative effects region are briefly described below. Emphasis has been placed on actions that overlap the proposed road and airfield repairs project spatially or temporally, or have otherwise affected (or would affect) the condition of environmental resources in the proposed project area.

4.2 PAST, PRESENT AND REASONABLY FORESEEABLE ACTIONS

A total of three past, present or reasonably foreseeable actions were identified that could potentially result in cumulative impacts; these projects include (1) the SNI supply pier project, (2) the Development of Wind Energy Facilities project, and (3) a potential future sea lion collection project. The parameters of each of these projects are summarized below.

Project: **SNI Supply Pier**
Location: **SNI**
Status: **Completed in 2004**

In 2002, the Navy proposed to construct and operate a new supply pier and associated facilities at NBVC SNI to replace the former method of transfer of equipment and supplies, which was by barge beach landings at Daytona Beach (Navy 2002a). The pier was situated in order to maximize the range of surf, weather, and tide conditions in which barges can safely deliver supplies to NBVC SNI while minimizing the safety and environmental risks present in current landing methods. An EA was prepared in 2002, and pier and shore facility construction began in 2003 for the preferred alternative. Construction activities involved installation of a temporary beach barge landing ramp, demolition of existing facilities, construction of a concrete pier, construction of support facilities, and demolition of the temporary beach barge landing ramp. Since completion of construction (2004), the supply pier has been, and is currently used to temporarily dock barges and off-load/load supplies on a routine basis as described below.

Barge loading and off-loading operations are conducted from the end of the pier. Barges are scheduled about once per week, weather and sea conditions permitting. Barges typically depart from Port Hueneme or Long Beach Harbor and take eight to twelve hours to reach the island. A ramp at the end of the pier is lowered to rest on the barge allowing vehicles access to the pier and to offload or load supplies and materials. When docked, the barge is held in place by chains or cables attached to the pier. Typical turn-around time for the off-loading/loading process is two hours.

Project: **Development of Wind Energy Facilities**
Location: **NBVC SNI**
Status: **FONSI completed and signed**

The purpose of this project is to create cost-efficient renewable energy that would help maximize the Navy's ability to meet or exceed the renewable energy goals as mandated in the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and Executive Order 13423. The project is needed to allow NBVC SNI to become more energy self-sufficient.

An EA was prepared in August 2010 (Navy 2010b), and a FONSI was prepared and signed on September 7, 2010. The project would include the construction and operation of up to 11 wind turbines, construction of an energy storage system, and underground utility conduit connections at NBVC SNI. Energy generated by the wind turbines would serve to supplement energy demands on NBVC SNI that are currently met by JP-5 fueled diesel generators. The 100-kilowatt (kW) wind turbines would be mounted on 121-foot-tall monopole steel towers, with internal ladder access. The blades would rotate at up to 59 revolutions per minute, electrical production would be three-phase 480-volt alternating current, blade diameter would be approximately 68 feet, and the total height from the ground level to the tip of rotation would be 155 feet. Lighting would be installed on each wind turbine and would be a red, intermittent flashing light. The lights would be in operation 24-hours-per-day, daily, to be visible for air operations.

To optimize any excess energy, an Energy Storage System (ESS) would be installed in proximity to the existing powerhouse on Owen Road. The ESS would be housed in a metal pre-engineered building with concrete pad, similar in construction to the existing powerhouse. The approximate ESS building size would be 5,000 square feet. The Proposed Action would include trenching along the existing roadway network from the turbines to the ESS to allow for the undergrounding of the necessary utility connections. Utility connections and tie-ins would be above ground.

All construction materials, components of wind turbines, and construction equipment would be barged to NBVC SNI from NBVC Port Hueneme. All barge trips would offload on the NBVC SNI supply pier and be transported via vehicle to the project site.

The project would be constructed in phases. Installation of each individual wind turbine, after site preparation and material delivery, would take approximately two to three weeks. Wind turbines would be put into operation as they are completed within each phase. All construction materials, components of wind turbines, and construction equipment would be barged to NBVC SNI from NBVC Port Hueneme. It is anticipated that two additional roundtrip project-specific barge trips would be required for each of the

four phases (eight trips total) to transport cranes and other oversized construction equipment. All barge trips would offload on the NBVC SNI supply pier and be transported via vehicle to the project site. The project footprint would be an approximate 1-mile-long corridor 250 feet wide, within which the ultimate location of up to 11 turbines would be constructed. This area would include all permanently disturbed areas (an estimated 2,500 square feet per wind turbine), all temporary construction impacts and laydown areas (an estimated 1.5 acres per wind turbine), and all road improvements. All construction staging areas would be located within 250 feet of Skyline Drive, or on already disturbed roadways. The total area of the wind turbine corridor in which permanent and temporary impacts could occur is 32.12 acres. All temporary and permanent impacts associated with the ESS would occur within the 5,000-square-foot footprint.

Project: **Sea Lion Collection**
Location: **NBVC SNI**
Status: **Proposal**

For the sea lion collection project (Navy 2012), Navy civil servants, US Army Veterinary Corps soldiers, and civilians under contract to the Space and Naval Warfare Systems Center Pacific would collect sea lions from NBVC SNI for service in the Navy Marine Mammal Program. Sea lions would be collected each year for five years. The number of animals collected each year may vary, but would be no more than 25 young males, aged between 5 to 18 months and weighing less than 100 pounds. These sea lions would be selected for transport via Naval Air Logistics Office dedicated airlift to the Marine Mammal Program's base in San Diego. However, three to four times that number of animals would be handled and evaluated at NBVC SNI during the selection process. The Navy is currently developing an EA for this project (Navy 2012).

Project efforts would occur during the late winter (starting mid-February through mid-March), and again in fall (October to November). The collection of animals would occur intermittently over a 2 to 3 week period. Each collection effort would take approximately six to eight weeks, to allow time to set up a temporary staging area, observe and collect sea lions, perform veterinary exams, run diagnostic tests, provide supportive care, release animals not selected for service, transport selected sea lions to the Space and Naval Warfare Systems Center Pacific, and demobilize the staging area. The collection would occur on land using all-terrain vehicles (ATV) on sandy beaches or nearby existing disturbed roadbeds, and would target compromised young male sea lions that are hauled out on sandy beaches on the east and south sides of NBVC SNI, from Coast Guard Beach to Dutch Harbor. It is anticipated that most collections would occur on Daytona Beach. A temporary staging area would be located on the jetty at

Coast Guard Beach (east of the Proposed Action). Support equipment would be shipped via the existing barge service from NBVC Port Hueneme and weekly cargo flights from NBVC Point Mugu. Support equipment includes: two Polaris Ranger Crew gasoline-powered ATV; three aircraft pallets of animal enclosure components, kennels, two 3-hp, 220 volt sea water pumps, 600 feet of 2-inch hose, 2,000 pounds of frozen food fish in three chest freezers, and miscellaneous support gear. Support equipment may also include: two mobile containers (portable veterinary clinic and mammal food preparation unit), and a 56 kilowatt (kW) portable diesel generator with trailer and secondary containment boom.

4.3 POTENTIAL CUMULATIVE IMPACTS BY ENVIRONMENTAL RESOURCE AREA

This section addresses the cumulative impacts of the Proposed Action as well as the two action alternatives identified in Section 2.4. As noted in Section 1.5, cumulative impacts are not addressed in this EA for five resource specialties (socioeconomics, public services, airspace, visual and environmental justice) because potential impacts are considered negligible or non-existent. The cumulative impacts of the Proposed Action as well as the two action alternatives are described below for each resource area.

4.3.1 Air Quality

Construction of the Proposed Action (as well as both action alternatives) would contribute to a short-term increase in PM emissions, emissions of ozone precursors, and GHGs in and around NBVC SNI. The project is consistent with the SIP as well as the APCD's 2007 Air Quality Management Plan because emissions would not exceed General Conformity thresholds. As shown in the tables in Section 3.1.4, emissions associated with Alternative 2 and Alternative 3 both remain below General Conformity thresholds. Emissions from all action alternatives would not preclude the region from attaining the NAAQS or CAAQS for any pollutants; therefore there would be no significant impact to air quality.

There have been no long-term air quality impacts associated with the NBVC SNI supply pier operations, although air quality was temporally affected through the generation of gaseous and fugitive dust emissions during several months of the pier construction that took place in 2004. These impacts were not considered significant. Current operation of the pier has a beneficial impact on air quality. Barge landings are now completed more efficiently as the tug does not have to constantly force the barge onto the beach, resulting in the tug boat being on station for less time and thus reducing emissions for each barge run.

The FONSI for the Development of Wind Energy Facilities project states that the estimated annual emissions of all pollutants during construction activity would be less than the annual de minimis levels. Thus, the project would not result in significant impacts on air quality in the region. The project would result in an overall reduction in air emissions associated with operations at NBVC SNI. The project is anticipated to reduce reliance on fossil fuels for generation of 3,661,680 kW of electricity per year. Also, reduction of barge trips taking JP-5 fuel to NBVC SNI would reduce emissions. While the project would include minor operational emissions associated with maintaining the wind turbines, the reduction in emissions associated with power generation would be greater than the emissions associated with maintenance of the turbines.

Short-term impacts to air quality result from running portable generators during the proposed sea lion collection project have not been quantified, but are considered negligible.

Therefore, when added to the impacts from other projects in the cumulative effects region, the alternatives would not result in significant cumulative impacts to air quality. Several long-term cumulative beneficial impacts have been identified related to the NBVC SNI supply pier operations and the wind turbine project, as noted above.

Greenhouse Gas (GHG) Emissions

The potential effects of GHG emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on global climate change. Therefore, an appreciable impact on global climate change would only occur when GHG emissions associated with the Proposed Action and alternatives are combined with GHG emissions from other man-made activities on a global scale. However, GHGs emissions associated with the Proposed Action and alternatives are well below CEQ's threshold of 25,000 metric tons of CO2-e, warranting quantitative analysis, as shown in Table 4-1 below. In addition, implementation of minimization measure AIR-2 would also reduce diesel emissions associated with construction equipment.

Table 4-1: Estimated Annual GHG Emissions for Proposed Action and Action Alternatives

Alternative	Year	CO_2e Generated by Construction Activities (metric tons/year)							
		Tug Operations	Transfer of Aggregate to Beach	Aggregate Hauling	Asphalt Batch Plant		Roads Repairs	Airfield Repairs	**Total**
					Operation of the Plant	Generator	Equipment Exhaust	Equipment Exhaust	
Proposed Action (Alternative 1)	**1**	150.1	20.5	39.0	33.1	14.2	694.1	NA	951.0
	2	225.2	61.6	105.6	161.5	14.2	709.7	146.4	1424.1
	3	300.3	38.1	140.6	220.2	14.2	746.8	201.4	1661.6
	4	225.2	27.8	105.6	190.5	14.2	NA	184.1	747.5
	5	225.2	27.8	105.6	190.5	14.2	NA	184.1	747.5
Action Alternative 2	**1**	150.1	20.5	48.5	33.1	14.2	694.1	NA	960.5
	2	225.2	61.6	122.8	161.5	14.2	709.7	146.4	1441.3
	3	300.3	38.1	172.6	220.2	14.2	746.8	201.4	1693.6
	4	225.2	27.8	122.8	190.5	14.2	NA	184.1	764.7
	5	225.2	27.8	122.8	190.5	14.2	NA	184.1	764.7
Action Alternative 3	**1**	150.1	20.5	29.4	33.1	14.2	694.1	NA	941.4
	2	225.2	61.6	88.2	161.5	14.2	709.7	146.4	1406.8
	3	300.3	38.1	122.9	220.2	14.2	746.8	201.4	1643.9
	4	225.2	27.8	88.2	190.5	14.2	NA	184.1	730.1
	5	225.2	27.8	88.2	190.5	14.2	NA	184.1	730.1

In an effort to reduce energy consumption, reduce dependence on petroleum, and increase the use of renewable energy resources in accordance with the goals set by EO 13123 and the Energy Policy Act of 2005, the Navy has implemented a number of renewable energy projects. The types of projects currently in operation within the military installations in the region include thermal and photovoltaic solar systems, geothermal power plants, and wind generators. The military also purchases half of the biodiesel fuel sold in California. In California, AB 32 (California Global Warming Solutions Act 2006), requires CARB to develop and implement regulations to reduce GHG emissions by 2020.

Therefore, implementation of the Proposed Action and alternatives, in conjunction with other similar actions in the region of influence, would not result in significant cumulative impacts to global climate change.

4.3.2 Biological Resources

The Navy's objective for management of its natural resources is to balance sustainability with meeting mission needs. The Sikes Act Improvement Act of 1997 requires the U.S. Department of Defense to prepare and implement an INRMP for installations that have significant natural resources. The INRMP guides the management of natural resources in the context of military mission requirements, to ensure and facilitate their stewardship and compliance with natural resource laws and regulations. The Navy has implemented an INRMP for NBVC SNI (Navy 2010a), which serves to minimize potential cumulative impacts on the installation. The result is a reduction of project impacts to biological resources and recovery from past impacts. The recent success of the feral cat removal program through the Seabird Restoration Program is an example of the Navy's recovery efforts.

4.3.2.1 Vegetation Communities

Implementation of the Proposed Action and two action alternatives would result in minor and insignificant long-term and short-term impacts to native and non-native vegetation, with impacts primarily confined to road and airfield shoulders. The majority of impacts would occur in grassland (Table 3-21) at the airfield, which is dominated by non-native species. No federally listed threatened or endangered plant species are known to occur on NBVC SNI. Minimization measures BIO-2, BIO-4, BIO-8, BIO-15, BIO-16, VEG-1 and -2, AIR-1, and SWPPP-1, would reduce impacts to vegetative communities to less than significant.

The SNI Supply Pier project had no impacts to vegetation. The Development of Wind Energy Facilities EA concluded that the project would have minor and insignificant short- and long-term impacts to non-federally listed native vegetation, with the majority of permanent impacts occurring in coastal scrub habitat.

Vegetation is sparse in the Proposed Action areas that overlap with the Sea Lion Collection (Daytona and Coast Guard Beach), thus no impacts to vegetation would occur in these areas.

4.3.2.2 Federally Listed Wildlife

Western Snowy Plover

Short-term and long-term impacts to the western snowy plover from implementation of the Proposed Action and two action alternatives would be minimized or avoided by restricting barge landing and offloading to after the breeding and nesting season, from August 1 through November 30. Additionally,

implementation of minimization measures BIO-12, BIO-14, BIO-17, and WSP-1 and -2 would further reduce direct and indirect impacts to western snowy plovers to less than significant levels.

The SNI Supply Pier project at Daytona Beach did not have impacts to plovers, as nesting has continued to occur during pier loading and unloading activities, approximately 1,000 feet to the west of the pier. Due to increased use of the beach by marine mammals, impacts to plovers are unlikely to occur in the action area at Daytona Beach.

The USFWS concluded in their Biological Opinion Development of Wind Energy Facilities project (*Biological Opinion for the San Nicolas Island Wind Energy Project, Ventura County, California [8-8-10-F-35]* [USFWS 2010]) that impacts to western snowy plovers would be less than significant, as the project occurs on the mesa, outside their preferred habitat.

Sea Lion Collection project activities would occur outside of the breeding and nesting season, similarly to the Proposed Action.

Island Night Lizard

Implementation of the Proposed Action (and two action alternatives) may have minor and insignificant direct and indirect long-term impacts to island night lizards, from harassment and mortality related to relocation efforts and construction activities, respectively. However, long-term beneficial impacts would occur from the Proposed Action and alternatives, by improving habitat quality in drainages. Impacts to lizards would be reduced through the project design, which would minimize road shoulder work conducted in high quality lizard habitat (e.g. Owen Road area), and locate construction staging in areas of low quality habitat. Additionally, impacts would be spread over a number of years, with time for recovery of impacted populations between impacts. Implementation of minimization measures BIO-1 through -6, BIO-8, BIO-12, BIO-14, BIO-17, Veg-2, INL-1 through -6, and SWPPP-1 would reduce the level of impacts from implementation of the Proposed Action and action alternatives to less than significant.

The SNI Supply Pier project did not have long-term impacts on lizards in that project's locale, as lizards have since been observed in recent surveys along Beach Road (Fellers and Drost 2010). Additionally, the programmatic Biological Opinion (*Biological Opinion for Activities on San Nicolas Island, California [5090 Ser 8G0000D/7284][1-8-01-F-14]* [USFWS 2001]) addresses activities associated with the supply pier, barge landings, and materials staging. The associated annual reports (USFWS 2010, Navy 2011)

address island night lizard mortalities and relocations with the most recent end-of-year reports indicating that the capture and relocation of lizards occurs fairly often (46 times in three years), and injury or death is very rare (one in three years) from these actions (USFWS 2010).

The Biological Opinion for the Development of Wind Energy Facilities project (USFWS 2010) concluded that long-term impacts to the lizard would be less than significant. Given the phased implementation of the project, impacts would be spread across years, with time for recovery of the local population between impacts (USFWS 2010). The wind energy project is atop the mesa, but does not overlap the Proposed Action area, and given the lizard's very small home range (Fellers et.al. 1998), project impacts to lizards would not overlap.

No impacts to lizards are anticipated with the Sea Lion Collection project. In addition, the Navy recently successfully removed feral cats from the island through the Seabird Restoration Program. Though too soon to draw conclusions about the effects of feral cat removal on the lizard population, it is likely that removal of a non-native predator would result in gains in the lizard population.

4.3.2.3 Non-Federally Listed Wildlife

Avian Species

As detailed in Chapter 3, impacts to avian species under the Proposed Action and two action alternatives (with minimization measures BIO-1 through 4, BIO-8, BIO-11, BIO-14 through 17, and Veg-2) would be less than significant. Nesting birds are not likely to occur directly adjacent roadsides, and vegetation clearing around culverts would be conducted outside the breeding season when feasible. When this is not practical, pre-construction surveys would be conducted for active nests within 100 feet of the project area.

The Development of Wind Energy Facilities EA concluded that long-term, direct and indirect impacts to resident and migratory avian species protected under the MBTA would occur as a result of project operation, due to collision mortalities and avoidance of adjacent habitat. These impacts are expected to be less than significant. Construction impacts would be less than significant.

The SNI Supply Pier project had no long-term impact on avian species, as evidenced by nesting that occurs to the east of the pier. The Sea Lion Collection project is not likely to affect avian species other than cause temporary dispersal due to ATV travel on beaches.

San Nicolas Island Fox

The Proposed Action and two action alternatives could result in minor short-term impacts to the San Nicolas Island Fox from construction noise and activity, and long-term impacts from potential collision mortalities due to construction traffic and potentially increased speeds on the improved roads. The foxes' mobility and the Navy's measures to avoid take of the fox would reduce these impacts to less than significant. The Proposed Action and alternatives (with minimization measures BIO-1 through -7, BIO-9, BIO-12, BIO-14, and BIO-17) would have less than significant impacts to the San Nicolas Island fox.

The Development of Wind Energy Facilities EA concluded that minor impacts to the fox would be limited to the duration of construction, and these impacts would be less than significant. The SNI Supply Pier project has no impact on foxes, and the Sea Lion Collection project occurs primarily on the beach and would not affect foxes.

Marine Mammals

The timing of the Proposed Action (and alternatives) is outside the breeding and pupping season when fewer animals are hauled out on Coast Guard and Daytona beaches. Implementation of the Proposed Action and alternatives (with minimization measure BIO-10) would likely result in a few individual pinnipeds that may be present outside the breeding season being displaced from the project area. Impacts would be short-term and less than significant.

The SNI Supply Pier project required that pinnipeds be displaced from the project area, but the project resulted in short term and less than significant impacts on pinnipeds. Based on Navy biologist's records, pinnipeds hauled out on Daytona Beach during the SNI Supply Pier project and past barge beach landings conducted at Daytona, were unaffected by the associated noise and presence of humans and equipment. Overall, pinniped populations increased at Daytona Beach during the time period that previous barge landings were conducted (Smith 2005).

The Development of Wind Energy Facilities EA concluded that the project would result in indirect beneficial impacts to marine mammals, due to the reduced number of barge shipments transporting JP-5 fuel, and the associated decreased risk of an accidental fuel spill.

The Sea Lion Collection project includes the collection of a small number of juvenile male sea lions. During the collection process, pinnipeds that are hauled out in the vicinity would likely disperse from the area, or if not, they may need to be displaced by a qualified biologist. Collection could overlap spatially

and temporally with the Proposed Action and action alternatives. Collection may occur concurrently with the Proposed Action and alternatives, and at either Daytona or Coast Guard Beach. Due to the limited duration of both projects, the small window of potential overlap between the two projects, and the negligible impacts of displacement activities, impacts to marine mammals are not expected.

4.3.2.4 Marine Communities

Marine Flora

The Proposed Action and two action alternatives (with minimization measures BIO-1, EFH-1 through -6, and SWPPP-1) would result in less than significant short-term impacts to marine flora. Direct impacts from vessels would be avoided by using the clearest path of travel.

No long-term impacts to marine flora occurred from the SNI Supply Pier project, as evidenced by annual kelp canopy surveys that show persistent kelp coverage in the area. The EA developed for the project concluded that there would be less than significant impacts to marine flora. The Development of Wind Energy Facilities EA did not analyze impacts to marine flora, as no impacts would occur. However, the conclusion of beneficial impacts to marine mammals would also apply to marine flora, due to fewer fuel barges and the associated reduced risk of an accidental fuel spill.

Benthic Invertebrates

The Proposed Action and two action alternatives (with minimization measures BIO-1, EFH-1 through -7, and SWPPP-1) would result in short-term impacts to benthic invertebrates that are less than significant. Short-term direct impacts would occur from disturbance of the intertidal zone from landing barges on the beach, and to the sandy beach from grading a pathway. As discussed in Chapter 3, short-term indirect impacts would occur from suspended sediment during anchoring and landing, but would be limited to periods of offloading.

The SNI Supply Pier EA concluded that impacts to benthic invertebrates would be less than significant. The Development of Wind Energy Facilities EA did not analyze impacts to benthic invertebrates, as no impacts would occur. However, the conclusion of beneficial impacts to marine mammals would also apply to benthic invertebrates, due to fewer fuel barges and the associated reduced risk of an accidental fuel spill. The Sea Lion Collection project could overlap spatially and temporally with the Proposed Action. Collection could occur concurrently with the Proposed Action and alternatives, and at either Daytona or Coast Guard Beach. Collection activities include ATVs driving on the sandy beach. Due to

the short duration of the collection project and the Proposed Action, and the small window of potential overlap between the two projects, cumulative impacts would be less than significant.

Fish and Essential Fish Habitat (EFH)

Based on the limited extent and duration of the Proposed Action (with minimization measures BIO-1, EFH-1 through -6, and SWPPP-1), impacts to fish and EFH would be short-term and less than significant. Fish may disperse from the immediate project area, but would likely return once the offloading is complete. As described above for marine flora and benthic invertebrates, suspended sediments from the Proposed Action and alternatives would be temporary, and would likely be similar to conditions under heavy surf or storm events.

The SNI Supply Pier EA concluded that project activities would have less than significant impacts to fish and EFH. The Development of Wind Energy Facilities EA did not analyze impacts to fish and EFH, as no impacts would occur. However, the conclusion of beneficial impacts to marine mammals would also apply to fish and EFH, due to fewer fuel barges and the associated reduced risk of an accidental fuel spill. The Sea Lion Collection project activities would occur on land and no impacts to fish would be expected.

4.3.2.5 Waters of the United States (WOUS)

The Proposed Action and two action alternatives (with minimization measures BIO-1, BIO-2, and BIO-4, and SWPPP-1) would have less than significant short-term and long-term direct impacts to WOUS, and overall net beneficial long-term indirect impacts. Beneficial impacts would accrue through reduced erosion and sediment delivery to WOUS. Short-term direct impacts would be reduced to less than significant by implementation of standard construction erosion control practices.

There are no impacts to WOUS associated with operating the NBVC SNI supply pier or from the sea lion collection project.

Biological Resources Cumulative Impact Summary

As discussed above, impacts from other projects in combination with the Proposed Action and action alternatives would not result in an incremental increase in impacts to vegetative communities, federally listed wildlife (western snowy plover and island night lizard), non-federally listed wildlife (avian species, San Nicolas Island Fox, marine mammals, marine flora, benthic invertebrates, fish and essential fish habitat), or WOUS on NBVC SNI. Therefore, when added to the impacts from other projects in the

cumulative effects region, the alternatives would not result in significant cumulative impacts to biological resources.

4.3.3 Cultural Resources

As discussed in Chapter 3, the Proposed Action and action alternatives (with minimization measures CULT-1 through CULT-5) would not result in any significant impacts to cultural resources. Cultural resource impacts would be avoided through the following measures: archaeological monitoring, flagging and avoidance of sensitive cultural resources, and issuance of stop-work orders in the event that cultural resources are discovered during construction. Additionally, as an example of the Navy's commitment to preservation of archeological sites at SNI, full-time archeological staff maintain a presence on NBVC SNI to ensure the protection of cultural resources. Each archeological site on the island has been mapped in a GIS and associated database to ensure that no site is disturbed by projects ongoing or proposed at NBVC SNI.

Impacts to cultural resources are not occurring as a result of NBVC SNI pier operations. Potential impacts were not identified in the Development of Wind Energy Facilities EA, and none are anticipated for the planned sea lion collection project.

Therefore, when added to the impacts from other projects in the cumulative effects region, the Proposed Action and action alternatives would not result in significant cumulative impacts to cultural resources.

4.3.4 Geology and Soils

As discussed in Chapter 3, the grading and other surface disturbances associated with the Proposed Action and alternatives (with minimization measures SWPPP-1 and PALEO-1) could result in minor short-term increases in erosion, but would not result in any significant long-term impacts to geology and soils resources. By implementing the Navy's standard BMPs for erosion control, the Proposed Action and both action alternatives would result in only minor amounts of erosion only in the short-term. However, planned culvert repairs would result in minimizing the undercutting and erosion of soil at several locations for the long-term; therefore, the long-term impact of the Proposed Action (and two action alternatives) would be beneficial.

The Final Pier EA noted that once construction was complete, operation of the pier would have no impact to geology and soils in the future, and no impacts have been documented since the pier has been in

operation. Barge landings are now completed more efficiently as the tug does not have to constantly force the barge onto the beach. This change could result in long-term beneficial impact to the shoreline.

The Development of Wind Energy Facilities EA noted that overall, the project would not be constructed on any geologic hazard areas, there would be minimal site disturbance, and it would not result in any significant landform alterations or topographic impacts. The potential for significant soil or erosion impacts would be reduced with the implementation of BMPs. Therefore, the project would not result in any significant short- or long-term impacts to geology or soils. Short-term impacts identified included minor increased erosion as a result of construction activities. All impacts were noted to be minor and less than significant.

No impacts to geology and soils are anticipated for the planned sea lion collection project.

Therefore, when added to the impacts from other projects in the cumulative effects region, the Proposed Action and action alternatives would not result in significant cumulative impacts to geology and soils.

4.3.5 Hazardous Materials and Hazardous Waste

Hazardous materials are used in daily operations at NBVC SNI. Solvents, hydraulic fluid, antifreeze, paints, adhesives, pesticides, herbicides, caustics, and other substances may be found at many of the activity sites, including the NBVC SNI supply pier and support facilities. Additionally, oil and hazardous substances are stored and handled at several locations on NBVC SNI. By implementing the Navy's standard BMPs for management of hazardous materials, the Proposed Action and action alternatives would result in no significant impacts on the use of hazardous materials or the handling of hazardous waste on NBVC SNI.

Similar operational conditions have been identified for the NBVC SNI supply pier operations, in the Development of Wind Energy Facilities EA, and are anticipated for the sea lion collection project. Therefore, there are no significant impacts as a result of the use of hazardous materials, or handling of hazardous waste, associated with any of these projects.

Therefore, when added to the impacts from other projects in the cumulative effects region, the alternatives would not result in significant cumulative impacts associated with the use of hazardous materials or generation of hazardous waste.

Some cumulative beneficial impacts have been identified related to the wind turbine project. NBVC SNI currently receives its electricity from JP-5–fueled generators. The wind turbine project would have a significant beneficial impact to NBVC SNI reducing the potential for accidental spills associated with the transport of JP-5 fuel.

4.3.6 Human Health and Safety

Unhealthy and unsafe conditions could occur from the following:

- Construction of facilities within the Explosive Safety Quantity Distance arcs or ordnance storage or handling facilities;
- Generation, use, or storage of hazardous materials in violation of Federal regulations;
- Violation of RCRA or safety guidance and emergency response procedures of the Hazardous Materials Business Plan; or
- Exposure of workers to increased health risks from electromagnetic radiation or military operations.

Under the Proposed Action and action alternatives, adherence to the Navy's Safety and Health Requirements Manual, the APP, and AHA would help ensure that none of the above conditions would occur.

Since operation began in 2004, there have been no significant impacts to human health and safety documented at the NBVC SNI supply pier and facilities. Also, no significant impacts regarding human health and safety were identified in the Development of Wind Energy Facilities EA, and none are expected in the sea lion collection project.

Therefore, when added to the impacts from other projects in the cumulative effects region, the alternatives would not result in significant cumulative impacts to human health and safety.

4.3.7 Land Use and Coastal Zone Management

Under the Proposed Action and action alternatives, the proposed airfield repairs are identified as mission critical in the AOP and proposed road repairs are identified as a mission support project. Closure of the runways to facilitate repairs is expected to last no longer than two weeks and this short-term closure is not expected to significantly affect the mission of NBVC SNI. With implementation of the minimization measures listed in Chapter 2, the Proposed Action and action alternatives would be in compliance with

the Coastal Zone Management Act. Therefore, the Proposed Action would not result in a significant impact to coastal zone management on NBVC SNI.

No impacts to Land Use and Coastal Zone Management have been identified with the operation of the NBVC SNI supply pier and facilities, and none are anticipated for the sea lion collection project.

According to the Development of Wind Energy Facilities EA, construction and operation of wind turbines would introduce permanent structures on undeveloped sites. Construction and use of the site would follow the goals and objectives of the Base Master Plan, the AOP, and the INRMP. Even though there is currently no land use designation for the proposed site, land use development constraints have been identified on NBVC SNI. The constraints pertain to the installation's ability to support its mission. Specific criteria have been identified to address these constraints and are identified below (U.S. Navy 2009a):

- Turbines must be no closer than 1 mile from and outside of the line of sight of ongoing telemetry operations.
- Turbines must not affect airfield flight lines.
- Project features must not be located within missile drop zones.
- Project features must be outside of the "line of sight" for radar operations.
- Turbines must be in an optimal location for wind.

The Development of Wind Energy Facilities EA states that the proposed location of the wind turbines meets the above criteria and would not result in any land use or operational impacts that would affect the mission of NBVC SNI. Additionally, the wind turbines could be shut down at anytime to avoid affecting military operations on NBVC SNI. The proposed utility connections would be located either within the existing utility corridor or immediately adjacent to the existing corridor and the existing road network. The proposed ESS would be located adjacent to the existing powerhouse at Building 114. These project features would be consistent with existing land uses and would not have significant impacts to land use.

Therefore, when added to the impacts from other projects in the cumulative effects region, the alternatives would not result in significant cumulative impacts to land use and coastal zone management.

4.3.8 Noise

Intermittent noise is associated with general daily activities at NBVC SNI. The primary noise sources on the island include vehicular traffic on roadways, noise associated with aircraft activity at the airfield complex and under the approach/departure routes, periodic missile launch activities at the west end of the island, various construction and maintenance activities, and industrial noise created by generators and other similar types of equipment throughout the island.

Construction noise associated with the Proposed Action and action alternatives could, in the short-term, affect permanent and temporary residents on the island within Nicktown during repairs of the roads through the area. However, limitations including construction only occurring between 8 a.m. to 5 p.m. weekdays only in Nicktown, would reduce these impacts. Therefore, the Proposed Action and action alternatives would result in short-term impacts related to noise that are less than significant. There would be no long-term impacts from noise.

The Development of Wind Energy Facilities EA states that noise would be generated during the construction and operation of the wind turbines. Project construction is estimated to begin in 2012 and include four phases that would last through the end of 2017. Primary construction noise sources would include heavy construction equipment, vehicles used to transport construction materials, and worker vehicle trips traveling to and from the site. The primary noise sources associated with the operation of the wind turbines would include mechanical equipment associated with the wind turbine and the ESS facility operation and maintenance. Noise calculations provided in the Development of Wind Energy Facilities EA indicate that the increase in noise associated with construction would result in a short-term impact that is less than significant. Noise associated with operations of the wind turbine would result in a long-term impact that is less than significant.

Noise impacts are not expected during the sea lion collection project.

Therefore, when added to the impacts from other projects in the cumulative effects region, the Proposed Action and action alternatives would not result in significant cumulative impacts associated with noise.

4.3.9 Recreation

Recreational use at Daytona Beach and Coast Guard Beach would be affected during barge beach landings. However, given the short duration of these impacts (four times between August and November during a 5-year period) the Proposed Action and action alternatives would not result in any significant

impacts to recreation. In addition, NBVC SNI has no public access and is solely owned and managed by the U.S. Navy. Therefore, no significant impacts associated with access to the shore (recreational or otherwise) or land use incompatibility could occur.

Because there is no public access to SNI, no significant impacts to recreation are associated with the operation of the NBVC SNI supply pier, as part of the Development of Wind Energy Facilities project, or would occur during the sea lion collection project.

Therefore, when added to the impacts from other projects in the cumulative effects region, the alternatives would not result in significant cumulative impacts to recreation.

4.3.10 Services and Utilities

Only three potable water barge shipments would be required for the Proposed Action and action alternatives over the course of the 5-year project. In addition, a maximum of 25 construction personnel would be on the island at any one time, and the Proposed Action and action alternatives would not involve the addition of permanent employees to the workforce on NBVC SNI. Therefore, the Proposed Action would have a minor and short-term less than significant impact to services and utilities on NBVC SNI.

There are no services and utilities impacts associated with the operation of the SNI supply pier. The sea lion collection project would rely on existing services, utilities and infrastructure; therefore, impacts to services and utilities are considered to be less than significant.

The Development of Wind Energy Facilities EA states that there would not be an increased demand for police protection, fire protection, wastewater treatment and disposal, and fresh water supply from the project. This project would have a significant beneficial impact to NBVC SNI by: supplying secure and improved power; reducing its dependency on fossil fuels, reducing energy and operational costs, reducing GHG emissions associated with the delivery of JP-5 fuel to NBVC SNI, and the generation of power on-site.

Therefore, when added to the impacts from other projects in the cumulative effects region, the Proposed Action and action alternatives would not result in significant cumulative impacts to services and utilities. Some long-term cumulative beneficial impacts have been identified related to the wind turbine project.

4.3.11 Transportation

For the Proposed Action and action alternatives, roads repairs would be conducted on one lane at a time on the major roads of SNI. This would keep one lane open at all times on these roadways and help reduce impacts to traffic. During the course of the Proposed Action and action alternatives, an ordnance route would always remain open so that impacts to transportation would be short-term and less than significant.

In addition, the airfield runway would need to be closed for approximately 2 weeks to repair a section of the runway. The shipping barge would use standard Vessel Traffic Separation Scheme shipping lanes and anchorage of the shipping barge at Daytona Beach would not preclude the use of the pier by the supply barge regularly used by the Navy. Overall, implementation of the Proposed Action and action alternatives would result in increased safe conditions for transportation, and would support the viability and continued use of the runway. Therefore, the Proposed Action and action alternatives would have a long-term beneficial impact on transportation.

The wind energy project would temporarily affect land-based transportation at different locations on SNI during the construction phase of the project (increased traffic on existing roads); however, impacts would be short-term and less than significant.

Neither the existing NBVC SNI supply pier operations nor the proposed sea lion collection project would have any noticeable effect on land-based transportation.

The NBVC SNI pier would experience an incremental increase in use if the Proposed Action (and action alternatives) and the Development of Wind Energy Facilities project are concurrently developed. Under existing conditions, one barge per week is berthed at the pier for approximately two hours. For the Development of Wind Energy Facilities project every effort would be made to schedule and reserve space on regularly scheduled barges, for equipment transport including wind turbines, large construction machinery, and other bulk materials. However, it is anticipated that up to two additional roundtrip project-specific barge trips would be required for each of the four phases (eight trips total) to transport cranes and other oversized construction equipment. This incremental increase in barge trips would be a minor and less than significant impact on transportation.

Therefore, when added to the impacts from other projects in the cumulative effects region, the alternatives would not result in significant cumulative impacts to transportation.

4.3.12 Water Resources

Disturbance of the beaches during barge beach landings for the Proposed Action and action alternatives would increase the turbidity of the ocean waters in the vicinity of the landing. Resulting turbidity is considered a less than significant short-term impact because the barge landings would occur only over the course of a few days, up to four times per year between August and November, for a period of five years.

Ground disturbance caused by the airfield and road repairs, including repairs of existing culverts, has the potential to result in erosion of areas, which could ultimately result in sedimentation in storm water discharging to the ocean during construction. However, implementation of standard erosion control measures and a SWPPP, in compliance with the LARWQCB's NPDES permit requirements for discharges associated with construction activities, would greatly reduce the potential for erosion to occur. In addition, over the long term, the culvert repairs would reduce or eliminate headcutting of existing drainage ditches and associated erosion and sedimentation of ocean waters, which has been occurring as a result of the damaged and undersized culverts. Therefore, the Proposed Action and action alternatives would have a significant long-term benefit to ocean water quality.

There are no impacts to water resources associated with operating the NBVC SNI supply pier or for the sea lion collection project.

The Development of Wind Energy Facilities EA states that the project would comply with Construction General Permit and Industrial General Permit requirements. Compliance with these standard construction practices through the project design features (construction BMPs) would avoid or minimize hydrology and water quality impacts, resulting in less than significant impacts. No mitigation would be required related to construction impacts due to implementation of the project design features.

Therefore, when added to the impacts from other projects in the cumulative effects region, the Proposed Action and action alternatives would not result in significant cumulative impacts to water resources. Rather, there would be a significant long-term benefit to ocean water quality.

4.3.13 Summary of Cumulative Impacts

The Proposed Action and two action alternatives have been evaluated with and against the EA cumulative impacts analysis as well as the other projects described above. Accordingly, when added to the impacts from other projects in the cumulative effects region, the alternatives would not result in significant cumulative impacts to any of the resource areas investigated. However, a number of long-term beneficial

cumulative impacts from the projects described above (including the Proposed Action and two action alternatives), could be realized. These benefits include:

- Long-term decrease in soil erosion and associated reduced delivery of sediment to the Pacific Ocean;
- Reduction in dependency on fossil fuels and GHG;
- Generation of power on-site;
- Reduction for accidental spills associated with the transport of JP-5 fuel; and
- Safer vehicle, equipment, weapons, and air transportation from improved roads and airfield repairs.

4.4 POSSIBLE CONFLICTS BETWEEN THE ACTION AND THE OBJECTIVES OF FEDERAL, REGIONAL, STATE, AND LOCAL PLANS, POLICIES, AND CONTROLS

Implementation of the Proposed Action (as well as the two action alternatives) would comply with existing federal regulations and state, regional, and local policies and programs.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and other natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the Proposed Action (as well as the two action alternatives) would involve the consumption of road aggregate, concrete, fuel, and oil, and other construction materials. However, relatively small to moderate quantities of these types of resources would be required. Therefore, implementation of the Proposed Action (as well as the two action alternatives) at the installation would not result in a significant commitment of irreversible or irretrievable resources.

4.6 SHORT-TERM VERSUS LONG-TERM PRODUCTIVITY

NEPA requires an analysis of the relationship between a project's short-term impacts to the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing a single development option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resource to a certain use eliminates the possibility of other uses being performed at that site. The Proposed Action and action alternatives would, irreversibly, dedicate equipment and other resources to a particular use during an extended period of time. However, these impacts are considered negligible, as the geographic areas associated with the Proposed Action and action alternatives are designated for and have historically accommodated the types of uses proposed. No new permanent land uses would be introduced or excluded at the installation as a result of this action. Therefore, the Proposed Action and action alternatives would not result in any impacts that would permanently narrow the range of beneficial uses of the environment.

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APPENDIX A
EMISSIONS FACTOR REFERENCES AND ASSUMPTIONS

Appendix A **Emissions Factor References and Assumptions**	
Barge	CARB 2010. "Evaluating Emissions Benefits of a Hybrid Tug". California Air Resources Board. October 2010.
	PM Emission Factor: EPA Tier Standard (0.15 g/kw-hr)
Assumptions:	Roundtrip within Ventura County waters = 16 hours
	Engine = one 8200 hp engine
Barge Transfer	EPA 2004. AP 42 Chapter 11.19.2. Crushed Stone Processing and Pulverized Mineral Processing. US Environmental Protection Agency. August 2004.
	SCAQMD. Offroad Equipment SCAB Fleet Average Emission Factors (Diesel). Derived from CARB Model Offroad 2007 Version 2.0.1.2.
Assumptions:	Two D-8 Cats used to transfer aggregate from primary barge to tender barge
	Two D-8 Cats used to transfer aggregate from tender barge to shore
Aggregate Hauling	SCAQMD. Offroad Equipment SCAB Fleet Average Emission Factors (Diesel). Derived from CARB Model Offroad 2007 Version 2.0.1.2.
Assumptions:	Coast Guard Beach to Asphalt Plant is 5 min (0.21 miles) drive plus 10 minute dwell
	Daytona Beach to Asphalt Plant is 10 min (4.0 mile)drive plus 10 minute dwell
	Coast Guard Beach to Airfield is 20 min drive (8 mile) plus 10 minute dwell
	Daytona Beach to Airfield is 30 min (12 mile) drive plus 10 minute dwell
	Speed based on 25 miles/hour
Asphalt Plant	EPA 2004. AP-42: Hot Mix Asphalt Plants. US Environmental Protection Agency. March 2004.
	SCAQMD 2010. Particulate Matter Emissions for Processes/Equipment at Asphalt, Cement, Concrete, and Aggregate Product Plants. South Coast Air Quality Management District. July 2010.
Assumptions:	Asphalt Plant (150 tons/hr processing capacity)
	3 conveyors
	Asphalt Density = 145 lb/ft3
Generator at Asphalt Plant	SCAQMD. Offroad Equipment SCAB Fleet Average Emission Factors (Diesel). Derived from CARB Model Offroad 2007 Version 2.0.1.2.
Assumptions:	150 hp
Road Construction	Sacramento Metropolitan AQMD. Road Construction Model Version 6.3.2.
Assumptions:	Assumes 2/3 emissions of Phase 1 occur in Year 1 and 1/3 occur in Year 2
	Assumes 1/3 emissions of Phase 2 occur in Year 2 and 2/3 occur in Year 3
Airfield Construction	SCAQMD. Offroad Equipment SCAB Fleet Average Emission Factors (Diesel). Derived from CARB Model Offroad 2007 Version 2.0.1.2.
Fugitive Dust	Western Governors Association 2006. WRAP Fugitive Dust Handbook. Prepared for WGA by Countess Environmental. September 2007.
Assumptions:	Average Conditions; PM Emission Factor = 0.11 ton/acre-month

APPENDIX B
U.S. FISH AND WILDLIFE SERVICE BIOLOGICAL OPINION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
08EVEN00-2011-F-0549

March 12, 2012

Captain J.J. McHugh
Naval Base Ventura County
311 Main Road, Suite 1
Point Mugu, California 93042-5033

Subject: Biological Opinion for the San Nicolas Island Roads and Airfield Repairs Project, Ventura County, California (8-8-12-F-12)

Dear Captain McHugh:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Navy's proposed San Nicolas Island Roads and Airfield Repairs Project and its effects on the federally threatened western snowy plover (*Charadrius alexandrinus nivosus*) and island night lizard (*Xantusia* (=*Klauberina*) *riversiana*), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Your September 13, 2011, request for formal consultation was received on September 19, 2011.

This biological opinion is based on information which accompanied your September 13, 2011, request for consultation, including the biological assessment (Navy 2011a) and a survey report (Fellers and Drost 2011), electronic and telephone communications between our staffs, and information in our files. A complete record of this consultation can be made available at the Ventura Fish and Wildlife Office.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

San Nicolas Island is owned by the Navy and operated to support various types of training, as well as to test and evaluate sea, land, and air weapons systems. The Navy is proposing to repair existing paved roads, road culverts, the airport runway, runway shoulders, and an airfield culvert (see Figure 2 in the biological assessment (Navy 2011a)). The Navy has identified these proposed repairs as critical for maintaining mission readiness and the safety of personnel during operations and ordinance transport. The proposed action will take place in 2 phases: repair of up to 12.45 miles of roads and associated culverts; and repair and replacement of 1 million square feet of airfield surface, shoulders, and culvert. The Navy's proposed action would include the following six components: 1) shipment of material by barge from the mainland to the island;

2) barge deliveries and offloading; 3) construction of a temporary asphalt batch plant; 4) material and equipment staging; 5) road and culvert repairs; and 6) airfield repairs.

As described more specifically in the biological assessment (Navy 2011a), the proposed project activities would include:

Shipment of material by barge from the mainland to the island/barge deliveries and offloading

The Navy is proposing to ship 195,000 tons of aggregate material from the mainland to San Nicolas Island using a primary shipping barge with a 13,000-ton capacity. Because Daytona Pier on San Nicolas Island is not able to accommodate such large volumes of material, the aggregate would be transferred in offshore waters of San Nicolas Island from the primary shipping barge to a smaller "tender" barge with a 2,000-ton capacity. Once the aggregate is transferred, the smaller tender barge would land on the beach where the aggregate would be transferred to dump trucks using either loaders or conveyor belts.

The Navy proposes to land on either Daytona Beach or Coast Guard Beach, depending on wind and swell conditions. Beach landings would occur between August 1 and November 30, with up to four deliveries each year for 5 years, beginning in 2012 and ending in 2016. A typical barge landing includes the use of two D8 bulldozers and anchor chains for anchoring the tender barge, for grading a pathway from the beach to existing roads, constructing a temporary ramp and berm on the beach, landing the barge, offloading the barge, removing the ramp and berm, and restoring the beach to its pre-barge landing condition. Beach landing activities are expected to take approximately 4 hours each, allowing for two landings per day within an 8 to 10 hour period. Therefore, the Navy anticipates that one shipment of 13,000 tons of aggregate would take 8 beach landings over a 5-day period.

Construction of a temporary asphalt batch plant

The Navy is proposing to construct a temporary asphalt batch plant near Coast Guard Beach off Beach Road in a previously disturbed area. Off-loaded aggregate would be transferred to this facility from either beach landing location by dump truck. After project completion, the temporary batch plant would be removed and the area restored to pre-project condition.

Material and equipment staging

Areas identified by the Navy for material staging include the Public Works Storage Yard, Monroe Borrow Pit, the Former Borrow Pit, Contractor Yard, and Airfield Laydown Area. All segments of road repair would require temporary staging in paved areas or open dirt lots free of vegetation. However, in the event that new staging areas are necessary, a 220-foot by 200-foot construction staging area would occur in non-native grassland or iceplant vegetation. Up to 6 new staging areas may be needed for both phases for road repairs.

The airfield would require 6 staging areas of approximately 1.5 acres each (9 acres total). Locations proposed for these staging areas include 3 in the infield and 3 at the northern perimeter. Staging may also occur on the runway or taxiway, depending on airfield operation needs (i.e., if the airfield is not needed, staging may be permitted). Upon completion, all disturbed staging areas would be re-vegetated with native vegetation approved by the Navy for use on San Nicolas Island.

Road and culvert repairs

Road repairs would be completed in two phases. Phase 1 would include road section stabilization, widening, asphalt resurfacing, shoulder repair, and culvert repairs. Four segments of road have been identified for repairs under Phase 1 and include: 0.5 miles (2,645 feet) along Owen Road south of Nicktown; 1.79 miles (9,440 feet) along Jackson Highway, west of Radar Row; 1.47 miles (7,775 feet) along Monroe Drive; and 1.88 (9,950 feet) miles along southern Shannon Road for a total of approximately 5.65 miles.

Phase 2 repairs include the same activities identified for Phase 1. Phase 2 repairs include five road segments: 1.28 miles (6,750 feet) along Owen Road through Nicktown to the north; 1.94 miles (10,250) feet along Jackson Highway to the northwest; 1.6 miles (8,430 feet) along Ordnance Alley and Tufts Road west from Shannon Drive; 0.98 miles (5,200 feet) along Shannon Drive to West NAVFAC Road; and 0.99 miles (5,250 feet) along streets within Nicktown. The total repairs for Phase 2 would be approximately 6.79 miles.

Road widths vary from approximately 22 to 25 feet with undefined earthen shoulders between 0 and 5 feet wide. Proposed road repairs would occur within the disturbed footprint of the existing road and shoulders resulting in a standard 25-foot wide paved asphalt surface. An additional minor road surface repair of 0.10 mile (528 feet) would occur to an existing unpaved road from the proposed asphalt batch plant to Coast Guard Beach. This repair would include fill material and require re-grading of the surface and contouring.

The proposed project would also include repairing all existing degraded culverts and drainages crossing the road repair footprint. The Navy has identified seven culverts for repair in Phase 1 and up to 10 culverts and one at the airfield for Phase 2. Activities associated with culvert repairs would include: 1) replacing failed corrugated metal pipes with plastic storm drain pipe, 2) constructing new concrete head wall systems, and 3) re-grading the existing earthen flow line of the drainage course through the culvert to minimize future erosion. Additionally, where existing drainage courses are deeply eroded, the Navy is proposing to install a sloped underground plastic storm drain pipe that connects to a concrete energy dissipation system and re-establish earthen road shoulder flow lines to control and minimize future erosion. All but 4 culverts and the airfield culvert would involve approximately 500 square feet of disturbance on either side of the road for a total of 1,000 square feet of disturbance per culvert. Four of the culverts would require more extensive repairs and involve 1,000 square feet on either side for a total of 2,000 square feet of disturbance. The Navy is also proposing to replace a half-pipe drain and to rebuild the concrete collection structure at the airfield. As a result of erosion, the outfall

would involve laying back the existing earthen drainage channel and benching the slopes to create a new flow line. The total area of disturbance as a result of culvert repairs is approximately 0.21 acre in Phase 1, up to 0.28 acre in Phase 2, and 1.0 acre at the airfield.

Airfield repairs

Airfield runway repairs would occur in developed hardscape and include reconstruction of 350 feet of existing runway, and reconstructing and paving existing runway and taxiway dirt shoulders to a 25-foot width.

Below, we have summarized the measures proposed by the Navy to avoid and minimize impacts to the western snowy plover and island night lizard, as described in the Biological Assessment (Navy 2011a):

General measures to avoid and minimize effects on listed species

1. As needed, a qualified biologist will oversee avoidance and minimization measures described below. Where a qualified biologist is needed (such as construction in island night lizard habitat or near sensitive biological resources), the biologist will: (1) be familiar with the federally listed species and associated habitats that require survey or monitoring; (2) have a bachelor's degree with an emphasis in ecology, wildlife biology, or related science; and (3) have previous experience with applying the terms and conditions of a Biological Opinion. In addition, if handling or potential disturbing of endangered species is required, the qualified biologist will be approved by the Service to conduct the activities pursuant to this Biological Opinion. For the minimization measures noted below, a "qualified biologist" is authorized by the Service to handle or relocate island night lizards, a "project biologist" may or may not be authorized by the Service to handle or relocate island night lizards, but possesses all other criterion as noted above.

2. All unnecessary predator perches will be removed or rendered unsuitable for that purpose, as feasible.

3. Areas of vegetation disturbance from construction will be monitored by a qualified biologist for regeneration of native vegetation. If adequate recruitment of native vegetation has not occurred 1 year from the end of the project disturbance, the Navy will re-vegetate with seed collected from native species on the island or install plants propagated from native plant material originating on the island.

4. At the beginning of project activities and quarterly for two years after the project completion, the project footprint (including all areas of road repairs, barge landing, asphalt production, and materials staging areas) will be monitored for introduction and growth of non-native plant species by a biologist skilled at plant identification and knowledgeable of Navy Base Ventura County (NBVC) San Nicolas Island (SNI) flora,

weed species, and the California Invasive Plant Inventory. Non-native invasive plant species observed in and near the project site before construction will be noted by the project biologist as part of the baseline conditions. Weed species new to the project area, whether they are new to NBVC SNI or new to the specific area of the project site, will be reported to Naval Facilities Engineering Command (NAVFAC) Southwest and NBVC for control. The NBVC biologist will determine the priority of non-native species to be removed.

a.) Non-natives will be removed by hand, or treated with spot applications of herbicide approved for use by the Navy biologist. Herbicide will be sprayed during calm weather to avoid overspray and damage to native vegetation.

Specific measures to avoid and minimize effects on western snowy plovers

5. During plover nesting season, a qualified biologist will survey beach areas for nesting plovers before barge landings are scheduled. Beaches will also be surveyed for plovers the morning of a landing; this applies to the nesting and non-nesting season.
   a.) During nesting season, if plovers are present within 1,000 feet of the action area, a biologist will remain on site during barge landing and unloading activities to monitor movement and behavior of western snowy plovers.
   b.) If plover nests are discovered within 500 feet of the action area, barge landings will be directed toward the alternate beach, assuming safe conditions allow for use of the alternate beach, and no nests occur within 500 feet of the landing area at the alternate site. In the unlikely event nesting plovers are present at both beach landing sites, the beach with plovers nesting at the furthest distance from a safe offload site will be used and a qualified biologist will monitor incubating behavior.
   c.) If foraging or roosting plovers occur within 100 feet of the action area, unloading and heavy equipment operations may be suspended at the discretion of the qualified biologist until the plovers leave the 100-foot buffer zone. The qualified biologist will remain on site during project activities.

Specific measures to avoid and minimize effects on island night lizards

6. Prior to the onset of construction activities, project footprints will be clearly marked with flagging, or other suitable material to avoid unintended impacts to sensitive areas and minimize impacts to vegetation and island night lizard habitat. Flagging will be removed promptly when the project is complete. Equipment, personnel, and vegetation removal will not operate beyond the limits defined by the flagging or fencing. Materials used to delineate the boundaries of the construction area will be removed immediately upon project completion.

7. Surveys will be conducted prior to construction to determine if night lizards are present and at risk of injury. Individuals at risk will require capture and relocation. Surveys will

follow the protocol described in the biological opinion for Activities on San Nicolas Island (Service 2001).

8. Island night lizard cover (stacks of wood, pallets, and piles of debris) will be removed from the footprint of the proposed action when feasible. Removal of these habitat elements will reduce the chance for sensitive species, including the island night lizard, to be attracted to the footprint of the proposed action and minimize the potential construction-related effects on sensitive species.

9. When project activities occur in moderate to high density lizard habitat, the project biologist will be on site to monitor construction to ensure compliance with avoidance and minimization measures, including implementing specific measures for the protection of island night lizards.

10. Island night lizards inhabiting structures or vegetation to be removed, or along roadsides, culverts, or at materials staging areas, will be captured when feasible and relocated by a qualified biologist authorized by the Service to nearby suitable habitat. Release sites will be re-visited to determine occupancy of re-located individuals, as feasible. Only biologists authorized under this biological opinion can capture and relocate island night lizards.

11. Staging will occur only in designated staging areas and be located on paved surfaces or existing barren dirt areas. If these two staging conditions cannot be met, staging will occur in areas of low density island night lizard habitat such as non-native grassland or iceplant vegetation.

12. Stacking construction material for staging will be discouraged. Where material must be stacked, it will be kept off the ground on pallets or similar supports. Stored material will be checked for the presence of island night lizards before it is moved.

13. To the greatest extent feasible, vegetation clearing in areas with a higher probability of island night lizard occupation will be avoided from September 1 to October 31 to avoid disrupting adults with recently born young. Where the project biologist deems appropriate, hand clearing of vegetation may occur to increase potential of capturing lizards in the project area and to decrease mortality of lizards.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATIONS

The jeopardy analyses in this biological opinion rely on four components: (1) the *Status of the Species*, which describes the range-wide condition of the western snowy plover and island night lizard**,** the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the western snowy plover and island night lizard in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the western snowy plover and island night lizard;

(3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the western snowy plover and island night lizard; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the western snowy plover and island night lizard.

In accordance with policy and regulation, the jeopardy determinations are made by evaluating the effects of the proposed federal action in the context of the current status of the western snowy plover and island night lizard, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the western snowy plover and island night lizard in the wild.

STATUS OF THE SPECIES

Western snowy plover

The Pacific Coast population of the western snowy plover was federally listed as threatened on March 5, 1993 (58 FR 12864), and critical habitat was designated on September 29, 2005 (70 FR 56970). The proposed project site is not within designated critical habitat for the western snowy plover, and thus we do not address project effects to western snowy plover critical habitat in this biological opinion. We issued a recovery plan for the western snowy plover in September 2007 (Service 2007).

The western snowy plover, a small shorebird in the family Charadriidae, weighs from 1.2 to 2 ounces and ranges in length from 5.9 to 6.6 inches (Page et al. 1995). It is pale gray-brown above and white below, with a white hindneck collar and dark lateral breast patches, forehead bar, and eye patches. The bill and legs are blackish. In breeding plumage, males usually have black markings on the head and breast; in females, usually one or more of these markings are dark brown. Early in the breeding season, a rufous crown may be evident on breeding males, but it is not typically seen on females. In non-breeding plumage, sexes cannot be distinguished because the breeding markings disappear. Fledged juveniles have buffy edges on their upper parts and can be distinguished from adults until approximately July through October, depending on when in the nesting season they hatched. After this period, molt and feather wear makes fledged juveniles indistinguishable from adults. Individual birds 1 year or older are considered to be breeding adults. The mean annual life span of western snowy plovers is estimated at about 3 years, but at least one individual was at least 15 years old when last seen (Page et al. 1995).

Western snowy plovers are primarily visual foragers, using the run-stop-peck method of feeding typical of *Charadrius* species. They forage on invertebrates in the wet sand and amongst surf-cast kelp within the intertidal zone, in dry sand areas above the high tide, on salt pans, on spoil sites, and along the edges of salt marshes, salt ponds, and lagoons. Western snowy plovers sometimes probe for prey in the sand and pick insects from low-growing plants. Their food

sources consist of immature and adult forms of aquatic and terrestrial invertebrates. Little quantitative information is available on food habits.

The Pacific Coast population of western snowy plovers nests near tidal waters along the mainland coast and offshore islands from Damon Point, Washington, to Bahía Magdelena, Baja California, Mexico. Most nesting occurs on unvegetated to moderately vegetated, dune-backed beaches and sand spits. Other less common nesting habitats include salt pans, dredge spoils, and salt pond levees. Nests consist of a shallow scrape or depression, sometimes lined with beach debris (e.g., small pebbles, shell fragments, plant debris, and mud chips); nest lining increases as incubation progresses. Nests are usually located within 328 feet of water, but can be farther away when there is no formative vegetative barrier between the nest and water (Page and Stenzel 1981). The majority of western snowy plovers are site-faithful (returning to the same breeding area in subsequent breeding seasons); some also disperse within and between years (Warriner et al. 1986, Stenzel et al. 1994).

The nesting season of the western snowy plover extends from early March through late September. Generally, the breeding season may be 2 to 4 weeks earlier in southern California than in Oregon and Washington. The earliest nests on the California coast occur during the first week of March in some years and by the third week of March in most years (Page et al. 1995). Peak initiation of nesting is from mid-April to mid-June (Warriner et al. 1986; Powell et al. 1997). On the Oregon coast, nesting may begin as early as mid-March, but most nests are initiated from mid-April through mid-July (Wilson-Jacobs and Meslow 1984). Peak nest initiation occurs from mid-May to early July (Stern et al. 1990). On the Washington coast, most adults arrive during late April, with maximum numbers present from mid-May to late June.

The typical clutch size of western snowy plovers is three with a range from two to six (Warriner et al. 1986, Page et al. 1995). Both sexes incubate the eggs, which take about 27 days to hatch, with the female tending to incubate during the day and the male at night (Warriner et al. 1986). After losing a clutch or brood or successfully hatching a nest, western snowy plovers may re-nest at the same site or move up to several hundred kilometers (1 kilometer equals 0.62 mile) to nest at other sites (Stenzel et al. 1994, Powell et al. 1997). Re-nesting occurs 2 to 14 days after failure of a clutch, and up to five re-nesting attempts have been observed for a pair (Warriner et al. 1986).

Western snowy plover chicks are precocial (capable of a high degree of independence from hatching), feeding on their own within hours of hatching. However, they are unable to fly until 1 month after hatching. Females generally desert males and broods by the sixth day, and thereafter the chicks are typically accompanied by only males. Females obtain new mates and initiate new nests while males rear the broods (Page et al. 1995).

During the non-breeding season western snowy plovers may remain at breeding sites or may migrate to other locations. In western North America, the western snowy plover winters mainly in coastal areas from southern Washington to Central America (Page et al. 1995); however, the majority of birds winter south of Bodega Bay, California (Page et al. 1986). Many birds from

the interior population winter on the central and southern coast of California. In winter, western snowy plovers are found on many of the beaches used for nesting, as well as some beaches where they do not nest. They also occur in man-made salt ponds and on estuarine sand and mud flats. In California, the majority of wintering western snowy plovers congregate on sand spits and dune-backed beaches. Some also occur on urban and bluff-backed beaches, which are rarely used for nesting (Page et al. 1986). Both coastal and inland-breeding western snowy plovers are very site-faithful to wintering sites.

Historical records indicate that nesting western snowy plovers were once more widely distributed and abundant in coastal Washington, Oregon, and California. Prior to 1970, western snowy plovers bred at 53 coastal locations in California. Between 1970 and 1981, western snowy plovers stopped breeding in parts of San Diego, Ventura, and Santa Barbara counties, most of Orange County, and all of Los Angeles County (Page and Stenzel 1981). In 2007, there were two nesting attempts documented on Los Angeles County beaches (SWCA 2007).

On the Washington coast, western snowy plover populations appear to have increased overall since the early 1990s, although consistent, intensive surveys have been conducted only since the mid-1990s (Service 2007). In Oregon, western snowy plovers historically nested at more than 20 sites on the coast, but only seven core nesting sites are consistently used (Lauten et al. 2006a, 2006b). Populations reached a low from 1991 to 1993 but have generally increased from 1994 to 2006 due to the implementation of management actions for the benefit of western snowy plovers and California least terns, including predator management and protection and restoration of suitable habitat (Service 2007).

The current Pacific Coast population of the western snowy plover is sparse in Washington, Oregon, and northern California. In 2006, estimated populations were 70 adults along the Washington coast (Pearson et al. 2006), 177 to 179 adults along coastal Oregon (Lauten et al. 2006b), and 2,231 adults in coastal California and San Francisco Bay (window survey including correction factor) (Page 2006, Service 2006). The California population of western snowy plovers comprises at least 90 percent of the listed Pacific Coast population. Eight geographic areas support over three-quarters of the California coastal breeding population: San Francisco Bay, Monterey Bay, Morro Bay, the Callendar-Mussel Rock Dunes area, the Point Sal to Point Conception area (VAFB), the Oxnard lowland, Santa Rosa Island, and San Nicolas Island (Page et al. 1991). A recent population estimate suggests the Baja California, Mexico population is approximately 1,000 breeding adults (E. Palacios, Pers. Comm. 2008).

Western snowy plover habitat is subject to erosion and accretion and is highly susceptible to degradation by mechanized beach cleaning; construction of seawalls, breakwaters, jetties, piers, homes, hotels, parking lots, access roads, trails, bike paths, day-use parks, marinas, ferry terminals, recreational facilities; and associated support services that may cause direct and indirect losses of breeding and wintering habitat for the western snowy plover. Urban development has permanently eliminated valuable nesting habitat on beaches in southern Washington (Brittell et al. 1976), Oregon (Oregon Department of Fish and Wildlife 1994), and California (Page and Stenzel 1981). Increased development increases human use of the beach,

thereby increasing disturbance to nesting plovers. Human activities such as walking, jogging, fishing, fireworks, unleashed pets, horseback riding, and off-road vehicles can destroy the western snowy plover's cryptic nests and chicks.

In addition to causing direct loss of habitat, urban development can result in additional adverse impacts to western snowy plovers. Human activities can interfere with foraging activities by disrupting the ability of adults and chicks to get to the wet beach to feed and return to the dunes or their nest (Burger and Fry 1993). Chicks can also become separated from their parents as a result of human disturbance of broods. Such disturbance could cause or contribute to chick mortality by interfering with essential chick-rearing behaviors or by causing intolerable stresses directly to the chicks (e.g., chicks separated from their parents are more susceptible to predation and exposure) (Cairns and McLaren 1980). For example, separation of chicks and their parent can lead to lethal exposure to wind and cold temperatures or disturbance that interferes with foraging could result in the starvation of western snowy plover chicks. In some instances, disturbance associated with these types of recreational activities is expected to temporarily flush western snowy plovers and not affect the birds in such a substantial manner. In other cases, such disturbance could interfere with the metabolism and thermoregulation of western snowy plover chicks and migrating or wintering adults such that they starve or egg production is impaired during the subsequent nesting season (Cairns 1982).

West Nile virus, a mosquito-borne disease which can infect birds, reptiles, and mammals, has spread rapidly across the United States from the initial introduction in New England (National Audubon Society 2006). In 2004 to 2006 the disease was reported from two coastal counties (Lane and Lincoln) in Oregon but has not been reported from any coastal counties in Washington (U.S. Geological Survey 2006). The virus has been identified in dead piping plovers and killdeer (*Charadrius vociferus*), both of which are closely related to the western snowy plover (Center for Disease Control 2004).

Predator density is an important factor affecting the quality of western snowy plover nesting habitat (Stenzel et al. 1994). The presence of humans near western snowy plover nesting areas can increase the presence of predators due to improper disposal of trash. Predation can result in the loss of adults, chicks, or eggs. Predators can also separate chicks from adults, which can lead to chick mortality. Predation by both native and non-native species limits western snowy plover reproductive success at many Pacific Coast sites. Non-native predators include eastern red foxes (*Vulpes vulpes regalis*), domestic and feral cats (*Felis catus*) and dogs (*Canis lupus familiaris*), and Virginia opossums (*Didelphis virginiana*). Coyotes (*Canis latrans*), American crows (*Corvus brachyrhynchos*), common ravens (*Corvus corax*), American kestrels (*Falco sparverius*), loggerhead shrikes (*Lanius ludovicianus*), and several gull species (*Larus* spp.) are native predators of the western snowy plover. The threat of predation by domestic cats intensifies when housing is constructed near western snowy plover breeding habitat. In addition, unnatural habitat features such as landscaped vegetation (e.g., palm trees), telephone poles, transmission towers, fences, buildings, and landfills near western snowy plover nesting areas attract both native and non-native predators (Service 2007).

One of the most dramatic causes of habitat loss for coastal breeding western snowy plovers has been the encroachment of non-native plant species that tend to stabilize dunes and grow too densely to accommodate nesting western snowy plovers. These include European beachgrass (*Ammophila arenaria*), American beachgrass (*Ammophila breviligulata*), Scotch broom (*Cytisus scoparius*), gorse (*Ulex europaeus*), South African iceplant (*Carpobrotus edulis*), pampas grass (*Cortaderia selloana*), jubata grass (*Cortaderia jubata*), iceplant (*Mesembryanthemum* sp.), and other non-native weed species (Service 2007). These species may also reduce the diversity and abundance of western snowy plover food sources (Slobodchikoff and Doyen 1977), and provide habitat for western snowy plover predators that historically would have been largely precluded by the lack of cover in the dune community (Stern et al. 1991). Shore pine (*Pinus contorta*) is a native plant species that has invaded coastal dunes and resulted in similar impacts to western snowy plovers (Schwendiman 1975, California Native Plant Society 1996, Powell 1996).

The Pacific Coast population of western snowy plovers has experienced widespread loss of nesting habitat and reduced reproductive success at many nesting locations. The reasons for the decline and degree of threats vary by geographic location; however, the primary threat is habitat destruction and degradation. Habitat loss and degradation can be primarily attributed to human disturbance, urban development, introduced plants, and expanding predator populations. Natural factors, such as inclement weather, have also affected the quality and quantity of western snowy plover habitat (Service 1993).

San Nicolas Island typically supports between 80 and 250 wintering western snowy plovers and between 40 and 100 breeding plovers (Volume 2, Table B-1 in Service 2007). Surveys conducted on SNI in winter 2009/2010 found 99 plovers (Service 2010), and breeding season surveys in 2010 found 50 plovers (Navy 2011a). The major threats to mainland coastal western snowy plovers (i.e., non-native plants and predators, human activities) are not considered a substantial threat to the species on San Nicolas Island. On San Nicolas Island, typical predators include island foxes, gulls, American kestrels, and feral cats. However, non-native predators are no longer considered a threat to the species on San Nicolas Island, as there are no records of black rats on the island and the Navy's monitoring phase to ensure no cats remain on SNI has been completed, with no cats known or suspected to be on island (Ruane, U.S. Navy, pers. comm. 2012). However, a recently emerging threat to the western snowy plover on San Nicolas Island is increasing pinniped populations which can overwhelm plover breeding beaches and force western snowy plovers to nest further from the beach in less typical habitat (Ruane, pers. comm. 2010).

Recovery of the western snowy plover

The primary objective of the recovery plan (Service 2007) is to remove the Pacific coast population of the western snowy plover from the list of endangered and threatened wildlife and plants by: (1) increasing population numbers distributed across the range of the Pacific coast population of the western snowy plover; (2) conducting intensive ongoing management for the species and its habitat and developing mechanisms to ensure management in perpetuity; and (3) monitoring western snowy plover populations and threats to determine success of recovery actions and refine management actions.

Island night lizard

The island night lizard was listed as threatened on August 11, 1977 (42 Federal Register (FR) 40682). The Service has not designated critical habitat for this species, and thus we do not address project effects to island night lizard critical habitat in this biological opinion. The following information for the island night lizard was taken from Service (1980), Service (1984), Fellers and Drost (undated.), Fellers and Drost (1991a, b), Fellers et al. (1998), Fellers et al. (2009), and Mautz (2001).

The island night lizard is endemic to three of the Channel Islands off the coast of southern California. It occurs on San Clemente, San Nicolas, and Santa Barbara Islands, and one small islet (Sutil Island) adjacent to Santa Barbara Island. The majority of island night lizards occur on San Clemente Island (estimates range from 2 to 20 million individuals) due to the large size of the island and availability of high-quality habitat. The population estimate for Santa Barbara Island (approximately 17,000), exceeds that of the much larger San Nicolas Island (approximately 15,000), because San Nicolas Island supports a relatively small amount of high-quality island night lizard habitat.

The island night lizard is a medium-sized lizard (2.75 to 4 inches snout-vent length) with soft scales and folds of skin along the neck and sides of the body. The back is mottled with pale gray or beige and yellow-brown, darkened to varying degrees with black giving it a reticulated or netted pattern. Occasionally, individuals may have dark dorsolateral lines or a vertebral stripe. Some island night lizards have a bluish tinge on the belly changing to yellow on the underside of the tail. Color variations appear to differ between the islands but individuals tend to match the substrates they inhabit. Compared to other Channel Island endemic vertebrates, island night lizards are apparently the most morphologically distinct from their closest relatives on the mainland, indicating a longer period of isolation (Fellers et al. 1998).

Despite their name, island night lizards are not nocturnal. They are most active at midday with little activity in the cool mornings or evenings and little, if any, activity at night. Activity peaks seasonally as well; island night lizards become active in spring during the mating season and activity subsides through the summer and fall. Young of the year may be active throughout the year, while adults display seasonal and daily variations in activity described.

Island night lizards become sexually mature in their third or fourth year. Unlike most reptiles, the island night lizard is viviparous, meaning that it bears live young that are nourished within the female. The females give birth to 3 to 9 young in September of each year following a 14-week gestation period. Only half of the females give birth in a given year and even then only one brood is attempted. The species is slow-maturing, long-lived, with a low reproductive potential. Fellers et al. (2009) estimate that some island night lizards can live to be up to 31.5 years old on NBVC SNI.

Like other lizard species, island night lizards are able to “self-amputate” their tails. This capability, known as autotomy, is thought to be a defensive mechanism to distract potential

predators. Island night lizards can also lose their tails during intraspecific aggression. Island night lizards are able to grow a new tail, although this requires energy resources that could otherwise be used for growth, reproduction, etc. Unlike smaller lizard species, island night lizards regenerate tails very slowly. The island night lizard's tail regeneration rate is an order of magnitude slower than smaller lizards, and a tail can take up to four years to completely regenerate (Fellers and Drost 1991b).

Island night lizards occupy a variety of habitats. Generally, they are most abundant in boxthorn (*Lysium californicum*) and cactus (*Opuntia* spp.) scrub; however, on San Nicolas Island the species also occurs in high density in the cobbles and driftwood of Red Eye Beach. Island night lizards reach moderate density in giant Coreopsis (*Coreopsis gigantea*) stands and rocky areas with fissures, and low density in grassland and mixed shrub habitat. The species will also opportunistically inhabit debris piles and other cover left by humans which may simulate the protective structure of natural habitat.

In suitable habitat, home ranges overlap and island night lizards can reach greater densities than any other ground-dwelling lizard; up to 1,300 lizards per acre in boxthorn and 1,000 per acre in cactus scrub (Fellers and Drost 1991). These high densities are attributed to a low metabolic rate and associated lower energy demands, sedentary nature, and their ability to live on diverse foods. Island night lizards eat a wide variety of insects and spiders and they ingest a relatively large quantity of plant material for a lizard of their size.

The island night lizard is threatened by past and ongoing effects of modern human occupation of the Channel Islands. Many years of grazing and browsing pressure from non-native mammals caused loss of habitat, long-term alteration of habitat, and subsequent accelerated erosion. Impacts from modern human occupation of the Channel Islands also include the introduction of non-native predators of the island night lizard including feral cats (*Felis catus*) and black rats (*Rattus rattus*). Other factors that threaten the island night lizard to a lesser degree include loss of habitat to development; introduction of non-native plants that displace native habitats, direct mortality from vehicles, and trampling and capture by humans. These threats may be exacerbated by the ability of the species to congregate in high density. Any disturbance, particularly in high-quality habitat, has the potential to affect a large number of island night lizard individuals.

Recovery of the Island Night Lizard

The primary objective of the recovery plan for species on the Channel Islands (Service 1984), which includes the island night lizard, is to restore endangered and threatened species to non-listed status by restoring and protecting habitat that can support viable self-sustaining populations. Because the plan covers a number of species on the Channel Islands in addition to the island night lizard, the goals and objectives are not any more specific than that. In the Environmental Baseline section that follows, we focus on the recovery plan measures that address the island night lizard, to the extent that such measures have some specificity.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) of the Act define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 Code of Federal Regulations (CFR) 402.02). For the purposes of this biological opinion and based on information provided by the Navy, the action area includes Coast Guard and Daytona Beach (for barge landings and offloading of material), road and shoulders, culverts, airfield, material staging areas, and the Coast Guard Beach access road. Additionally, we are including all roads used by project related vehicles and include all areas where island night lizards may be relocated. Due to the potential indirect effects of the action, we have included areas beyond where the project activities would occur, therefore, the action area, as defined above, is larger than the actual footprint that would be disturbed by project activities.

Additional detail about the environmental baseline, other than what is provided below, is available in the biological assessment (Navy 2011a).

Within the action area, vegetation communities include coreopsis, coastal scrub, grassland, beach, and barren areas. Habitat conditions vary throughout the action area from high quality habitat to barren areas supporting no habitat. In general, habitat for snowy plovers exists within the action area at Coast Guard and Daytona Beach, and the Former Borrow Pit. However, while habitat is present for snowy plovers in these locations, Daytona Beach is located in an area where Navy activities occur on a regular basis as a result of pier and additional facilities operations. Island night lizard habitat within the action area is at its highest quality along sections of Owens Road and culverts. Habitat within the remaining areas of the proposed project varies, as stated above, to include barren areas and vegetation communities that support varying densities of island night lizards.

Western snowy plover

San Nicolas Island supports both breeding and non-breeding western snowy plovers. Based on calculations using a geographic information system, approximately 3.40 acres of potential western snowy plover habitat exists within the action area at Coast Guard and Daytona Beaches (areas used for breeding and non-breeding are similar). Since 2002, the breeding population on San Nicolas Island has ranged from 46 to 96 plovers, with an average of 69 individuals (Navy 2011a). Since 2003, the wintering population has ranged from 86 to 243, with an average of 157 individuals. In February 2010, a survey documented 99 individuals with the majority located on Tender Beach (outside the action area). Both Daytona and Coast Guard Beaches, and the Former Borrow Pit provide suitable breeding and foraging habitat. As marine mammal numbers continue to increase on the island, suitable habitat for plover breeding and foraging may be decreasing.

Western snowy plovers have historically used Daytona Beach for both foraging and breeding; however, these activities primarily occur 985 feet or more west of the pier. In fact, since 1992,

only three exceptions have occurred; one nest located at 328 feet west of the pier, and two nests at the pier staging area located upland of the Beach Road. While plovers have used the area for both foraging and breeding, it is rarely used for nesting, most likely a result of the beach often being inundated with waves and increased marine mammal use, resulting in reduced available nesting habitat.

Coast Guard Beach is known to have nesting plovers; it supports suitable nesting substrate and is in proximity to foraging habitat. Coast Guard Beach is divided into West Beach and East Beach. East Beach is surveyed regularly as result of ongoing activities, while West Beach is seldom surveyed; however, during those surveys of West Beach, plovers have been observed nesting in the back beach area, and in the Former Borrow Pit area.

The October 15, 2001, programmatic biological opinion for ongoing activities on San Nicolas Island (1-8-01-F-14) addressed impacts from Navy activities on the western snowy plover. The three most recent end-of-year reports (Navy 2009, 2010, 2011b) pursuant to this biological opinion indicate that the ongoing activities appear to have relatively minor effects on the western snowy plover. This biological opinion specifically addresses barge landings at Daytona Beach.

Recovery of the western snowy plover
The San Nicolas Island sub-population of western snowy plovers belongs to Recovery Unit 5. While no specific goals are identified for San Nicolas Island, the primary objective of the recovery plan (Service 2007) is to remove the Pacific coast population of the western snowy plover from the list of endangered and threatened wildlife and plants by: (1) increasing population numbers distributed across the range of the Pacific coast population of the western snowy plover; (2) conducting intensive ongoing management for the species and its habitat and developing mechanisms to ensure management in perpetuity; and (3) monitoring western snowy plover populations and threats to determine success of recovery actions and refine management actions.

The Navy has implemented conservation measures for the western snowy plover on San Nicolas Island that are compatible with the goals stated above. For example, the following is an excerpt from the Navy's Integrated Natural Resource Management Plan for San Nicolas Island (Tierra Data, Inc. 2010):

> "Support recovery plan efforts to establish stable western snowy plover (Charadrius alexandrinus nivosus) populations and eventual delisting by closing nesting areas to recreational activity during the March 1 - September 15 breeding season and by removing unnecessary structures in nesting areas.
>
> Support recovery plan efforts to establish stable western snowy plover populations and eventual delisting by monitoring the effects of Navy activities on snowy plovers through conducting island-wide snowy plover censuses twice annually, once during the breeding

> season and once during the winter season, and through monitoring snowy plover nests during missile or target launches, general operations, and other activities that may disturb nesting behaviors."

Additionally, the Navy has completed a final monitoring phase to ensure no cats remain on SNI and as a result of this survey; no cats are known or suspected to be on island at this time (Ruane, U.S. Navy, pers. comm. 2012).

Island night lizard

The vegetation communities within the action area include coreopsis, coastal scrub, grassland, beach, and barren areas. The San Nicolas Island population of island night lizards is estimated to be approximately 15,350 individuals (Fellers *et al.* 1998). It is difficult to estimate the precise amount of habitat or lizards that may be present within the action area itself, but within the actual footprint of the project, a survey conducted by Fellers and Drost in June 2011, estimates 21.85 acres of potential habitat exists, occupied by an estimated 614 island nights lizards (Navy 2011a, Fellers and Drost 2011).

Within the action area, island night lizard habitat is a mixture of low-to high density habitat (see Figure 5 in the Navy's biological assessment (2011)). Island night lizards are generally distributed only over the eastern half of the island with the exception of a few isolated populations along the west end and southern shore. Where island night lizards occur, their numbers vary greatly. These variations seem to be related to habitat, as shown in Table 1 below (from Fellers *et al*. 1998). The grasslands that cover much of the eastern mesa support few or no island night lizards (0.002 lizards per square meter (m^2)). Mixed shrub and cactus communities support moderate numbers of island night lizards (0.25 per m^2), boxthorn habitat supports a higher density of island night lizards (0.32 per m^2), and beach boulder habitat provides the highest density of INL's (0.40 per m^2).

Table 1. Island night lizard population estimates by habitat type and a total number:

Habitat	Area (square meters)	Lizards/hectare	Population
Cactus	4,740	2,500	1,190
Boxthorn	500	3,200	160
Boulder beach	2,500	4,000	1,000
Mixed scrub	650,000	200	13,000
Total island night lizards on San Nicolas Island (estimated)			15,350

The greatest threat to the island night lizard on San Nicolas Island is the paucity of high-quality habitat remaining after extensive conversion of the island to low-quality habitat caused by non-native mammals. Non-native predators are no longer a threat to the species on San Nicolas Island, as there are no records of black rats on the island, and the Navy's monitoring phase to ensure no cats remain on SNI has been completed, with no cats known or suspected to be on island (Ruane pers. comm. 2012). However, the recent introduction of southern alligator lizards

(*Elgaria multicarinata*) to San Nicolas Island may affect the island night lizard through interspecific competition; however, the nature of the interactions between these species is largely unknown.

The island night lizard is also affected by ongoing activities on San Nicolas Island (i.e., normal military operations). These activities, and the associated effects on the species, are addressed by the October 15, 2001, programmatic biological opinion for ongoing activities on San Nicolas Island (1-8-01-F-14). The established materials staging areas (Public Works Storage Yard, Monroe Borrow Pit, Contractor Yard, and Airfield Laydown Area) and the activities that occur in them along with maintenance activities for shoulder mowing and minor shoulder repairs from 0 to 8 feet width are also addressed in the biological opinion (Service 2001). The three most recent end-of-year reports (Navy 2009, 2010, 2011b) pursuant to this biological opinion indicate that capture and relocation occurs fairly often, although injury or death is very rare.

Recovery of the island night lizard

As stated in the Status of the Species section for the island night lizard, the recovery plan for species on the Channel Islands (Service 1984) does not identify any specific recovery goals on San Nicolas Island. The primary objective of the recovery plan (Service 1984) is to restore endangered and threatened species to non-listed status by restoring and protecting habitat that can support viable self-sustaining populations.

In furtherance of that objective, the Navy implements conservation measures for the island night lizard on San Nicolas Island. For example, the following is an excerpt from the Navy's Integrated Natural Resource Management Plan for San Nicolas Island (Tierra Data, Inc. 2010):

> "Support recovery plan efforts to establish stable island night lizard populations and eventual delisting by conducting site specific surveys prior to disturbance activities, implementing avoidance and minimization measures, and conducting studies to investigate the effectiveness of island night lizard management strategies with respect to impacts from alligator lizards and the relocation island night lizards."

The Navy has completed a final monitoring phase to ensure no cats remain on SNI; no cats are known or suspected to be on island at this time (Ruane, U.S. Navy, pers. comm. 2012). This has been a significant improvement in the conditions for island night lizards on San Nicolas Island and contributes to the overall recovery goals for the species.

EFFECTS OF THE ACTION

Western Snowy Plover

Within the proposed project area, snowy plovers could nest, forage, and roost at Daytona and Coast Guard Beaches, and the Former Borrow Pit. All other proposed activities within the action area occur outside western snowy plover habitat. The number of western snowy plovers affected

is dependent upon the number of nests and young present, adults foraging and/or roosting, and conditions during monitoring and project activities.

As a result of project activities, both indirect and direct effects to snowy plovers are possible. Indirect effects associated with project activities include: disruption of breeding and non-breeding season activities by noise and human activity, which may cause plovers to leave foraging, nesting and/or roosting areas; being flushed from nest sites during periods of human activity which may result in the loss of eggs or young (this is more of a problem during inclement weather (*e.g.*, cold, windy, hot)); structures left adjacent to nesting areas may serve as perches for predators and increase predation on eggs or nestlings; and disturbance may cause the separation of young from adults and may make the young susceptible to predation. Direct effects include eggs, nestlings, and adults being trampled or crushed by humans and motorized equipment resulting in eggs, nestlings, and/or adults being lost.

The Navy proposes to minimize the above effects by 1) conducting project activities primarily during the non-breeding season when snowy plovers are less likely to be nesting in these areas; 2) remove or render unsuitable all unnecessary structures adjacent to the barge landing sites or asphalt batch plant that could provide predator perches, as feasible; 3) conduct surveys prior to beach landings and remain present if nests are found within 1000 feet to monitor movement and behavior; 4) redirect beach landing activities to the alternate beach, assuming safe conditions allow for use of the alternate beach, and no nests occur within 500 feet of the landing area at the alternate site (if plover are present at both beach landing locations; the beach with plovers nesting at the furthest distance from a safe offload site would be used and a qualified biologist would monitor incubating behavior); and 5) if foraging or roosting plovers occur within 100 feet of the action area, unloading and heavy equipment operations may be suspended at the decision of the qualified biologist until the plovers leave the 100 foot buffer. The qualified biologist would remain on site during project activities. Overall, we expect that the presence of a Service-approved qualified biologist during project activities occurring within occupied habitats would reduce the potential for any direct effects. Therefore, we do not anticipate any of the activities to result in injury or mortality of western snowy plovers.

The October 15, 2001, programmatic biological opinion for ongoing activities on San Nicolas Island (1-8-01-F-14) addressed impacts from Navy activities on the western snowy plover. The biological opinion specifically includes measures relating to barge landings at Daytona Beach. The following excerpt is from the Service's effects analysis in that biological opinion for barge landings at Daytona Beach:

> "In a letter sent to the Navy dated July 9, 1997, we noted that western snowy plovers have not attempted to nest at the barge landing location since 1993 and that increasing use of the beach by pinnipeds has reduced the value of the location as nesting habitat. Also, we recognized that the beach is narrowing and is frequently inundated by high tides which would destroy any nests. The biological assessment (Navy 2000) further states that the nearest nesting location is more than 900 feet from the landing ramp, although foraging individuals occasionally appear in the barge landing area, and the nearest critical

> habitat is approximately 700 feet to the west (Figure 9). Based upon this information, we concurred with the Navy's conclusion that the continued operation of the barge landing is not likely to adversely affect western snowy plovers.
>
> Because the barges come from the mainland, the potential exists that non-native plant and animal species could be transported to San Nicolas Island. If established, such non-native species may degrade habitat for the western snowy plover and island night lizard or introduced animals may prey directly upon these species. The Navy has proposed to clean and inspect all equipment, vehicles, and supplies to reduce the potential for such introductions; however, such measures may not always be sufficient to prevent plant propagules or animals from reaching the island."

Combined with the low likelihood that western snowy plovers will be in the barge landing areas, the measures proposed by the Navy for this action will further avoid and minimize the direct effects to individuals of the species. Also, impacts to the wintering habitat in the barge landing areas would be temporary and periodic (i.e., the habitat conditions are predicted to stay the same). Therefore, we do not expect that the proposed barge landing activities will have a substantial effect on the species both locally and rangewide.

Recovery of the western snowy plover

The effects to western snowy plovers and their habitat as a result of proposed project activities will not hinder the recovery efforts currently under way on San Nicolas Island. We believe the effects to individual plovers would be minor and should not have an overall effect on the species' recovery as described in the recovery plan.

Island Night Lizard

The proposed action area supports island night lizards in varying densities in all areas of suitable habitat. All island night lizards within the action area have the potential to be affected by project related activities. The Navy expects total ground disturbance in the action area to include: roads (13.57 acres), culverts (1.49 acres), staging areas (14.51 acres), airfield shoulder repair (23 acres), and borrow pit and asphalt batch plant (3.32 acres) for a total of 55.89 acres. The Navy has further identified the area of permanent and temporary disturbance to include: roads (9.06 acres permanent and 4.1 acres temporary), culverts (0 acres permanent and 1.49 temporary), staging areas (0 acre permanent and 14.51 acres temporary), airfield shoulder repair (23 acres permanent and 0 acre temporary), and borrow pit and asphalt batch plant (0 acre permanent and 3.32 acres temporary) for a total of 32.06 acres of permanent disturbance and 23.42 acres of temporary disturbance.

All island night lizards found within the footprint of the proposed action may be killed or injured during ground disturbing activities. The number of island night lizards affected will vary depending upon habitat type because the species' density varies among the different habitats found on San Nicolas Island; all other factors being equal, in habitats where the individuals exist more densely, more are likely to be killed than in an area where the habitat supports a lower

density of island night lizards. With this in mind, we have used a project-specific habitat assessment conducted by Gary Fellers and Charles Drost in June 2011 and their estimates for the number of lizards that may be affected by project related activities. With the projected disturbance of 0.07 acre (283.3 meters square) of high density, high quality habitat, up to 90 lizards may be affected. For medium density, medium quality habitat, 0.42 acres (1,700 square meters) is anticipated to be directly affected by project activities resulting in 343 lizards affected.

The remaining 22 acres (89,031 square meters) of the project occurs in low density habitat or habitat unsuitable to support the species and could affect up to 181 lizards. Thus, not all island night lizards in the action area would be directly impacted by the proposed activities; however, all island night lizards encountered in the disturbance areas would be subject to capture and relocation. Given this information, of the estimated 15,350 individuals on the island, 614 island night lizards may be adversely affected by project related activities.

Direct injury and mortality of island night lizards would be minimized by the Navy's proposal to survey the action area for island night lizards prior to ground disturbance and capture and relocate all observed island night lizards out of harm's way. Any island night lizards that avoid detection and remain in the action area may be crushed, buried, or otherwise injured by construction equipment, moving vehicles, or worker foot traffic.

Capture and relocation is intended to reduce the likelihood of injury or mortality but could cause physiological stress when an individual is relocated to unfamiliar territory. In addition, an individual must expend extra energy resources to regrow a tail if the tail is shed as a defensive mechanism during capture. Additionally, estimates for relocation success may range from 25 to 75 percent, depending on the quality and type of cover provided and many other variables such as condition of the relocated lizard, weather events, and time of year (Tetra Tech 2011). Therefore, of the 614 individuals that are estimated to be present and could be relocated, we conclude that 154 to 460 of those lizards may suffer injury or mortality. Despite the potential for capture-related injury or mortality, we conclude that the proposed measure will avoid and minimize enough of the injury and mortality that would occur otherwise to justify implementing capture and relocation.

All island night lizards in the action area would be subject to indirect effects through increased noise and vibration. We do not know the extent to which noise and vibration affect island night lizards. At a minimum, we expect lizards to seek shelter and reduce foraging in the presence of significant ground vibrations. Given the species' slow metabolism, a short-term interruption of foraging will not significantly affect an individual's health; however, if this behavior lasts long enough, it could decrease an individual's health and/or breeding success. Any effects from noise and vibration would be most acute when heavy construction equipment is in the action area for extended periods while conducting project activities. Additionally, given the island night lizards' sedentary nature and difficulty in monitoring behavior as a result of noise and vibration, it is difficult to document the effects occurring to island night lizards. However, we anticipate that island night lizards effected by noise and vibration would seek shelter until such activities decrease or they adjust to such effects. We conclude that island night lizards would resume

normal activities when such noise and vibration are no longer present and believe that such effects on the night lizard would not result in injury or mortality.

Beneficial effects on the island night lizard may also occur as a result of project activities. Such beneficial effects may include re-vegetation of disturbed areas with native species and priority weed treatment along roadsides, culverts, and roads repair staging areas for a minimum of 2 years after the project is complete. Those areas dominated by non-native plants prior to construction would benefit from re-vegetation and weed treatment, resulting in improved habitat for lizards in those areas. Additionally, road stabilization and erosion control measures would enhance the quality of lizard habitat by reducing soil, rock, and plant displacement during rain and wind.

In summary, the proposed activities could adversely affect island night lizards and their habitat. The habitat and the number of island night lizards affected would be relatively small given the population estimate of 15,300 individuals and the measures to minimize effects to island night lizards. Although the Navy's proposal to conduct erosion control and re-vegetation could stabilize existing habitat and create new higher-quality habitat for the species, moving vehicles, foot traffic, and habitat loss could cause stress, injury, or death to island night lizards in the action area. The Navy's proposal to capture and relocate island night lizards from project areas should reduce the chances of injury or death. However, based on the varying habitat quality and associated densities, and relocation success, as discussed above, we expect that some island night lizards will be injured and killed as a result of the proposed project activities. The loss of multiple individuals may have a greater effect on a closed population of island night lizards in the action area than it would on an open population or a population occurring at high density; however, the potential adverse effects of the project are unlikely to have a meaningful impact across the species range or on the island-wide population of island night lizards.

Recovery of the island night lizard
While we believe the number of individuals that may be lost as a result of project activities will have a short-term negative effect on the lizard population, through monitoring, capture and relocation, along with re-vegetation of disturbed areas, we believe the effects overall would be minor and should somewhat offset by the long-term benefit of habitat restoration proposed by the Navy. We conclude that the proposed action will not have overall substantial effect on the species' recovery as described in the recovery plan.

<u>Effects to both western snowy plover and island night lizard</u>

Because barges come from the mainland, the potential exists that non-native plant and animal species could be transported to San Nicolas Island. If established, such non-native species may degrade habitat for the western snowy plover and island night lizard or introduced animals may prey directly upon these species. To address these potential effects, the Navy has proposed to monitor the project footprint for introduction and growth of non-native plant species by a biologist skilled at plant identification and knowledgeable of NBVC SNI flora, weed species, and the California Invasive Plant Inventor. The monitoring would occur at the beginning of

project activities and quarterly for two years after project completion, and would include all areas of road repairs, barge landing, asphalt production, and materials staging areas. Additionally, construction Best Management Practices (BMPs) listed in the *Environmental Assessment for NBVC SNI Roads and Airfield Repairs Project* (Tetra Tech 2011a in Navy 2011a), would reduce the likelihood that invasive plants and wildlife species would be introduced. Such BMPs include requiring materials and vehicles to be free of invasive species before they are loaded onto the barge.

In summary, while the potential exists for barges and associated cargo to transport non-native species to San Nicolas Island, the Navy has proposed to include BMPs that we agree will minimize the potential of invasive species reaching the island by barge. Additionally, the Navy, as part of this project, will implement measures to monitor and address the introduction of non-native species beyond the project implementation period.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Because San Nicolas Island is a federal installation, we are not aware of any non-federal actions that are reasonably certain to occur in the action area.

CONCLUSION

After reviewing the current status of the western snowy plover and the island night lizard, the environmental baseline for the action area, the effects of the proposed San Nicolas Island Roads and Airfield Repairs Project, and the cumulative effects, it is the Service's biological opinion that the San Nicolas Island Roads and Airfield Repairs Project, as proposed, is not likely to jeopardize the continued existence of the western snowy plover or the island night lizard. We have reached this conclusion because:

<u>Western Snowy Plover</u>

1. The Navy has proposed measures to avoid and minimize adverse effects to the western snowy plover such as conducting activities outside the nesting season and conducting regular surveys prior to and during barge landing operations;

2. The western snowy plover population at San Nicolas Island represents a small portion of the subspecies' rangewide distribution and the local effects are not likely to reduce the overall population or degrade the status of the species at San Nicolas Island or the western snowy plover rangewide; and

3. The effects to western snowy plovers and their habitat as a result of proposed project activities should not have an overall effect on the species' recovery as described in the

recovery plan. The Navy is also implementing measures that contribute to the species' recovery and these should offset some of the effects of the proposed action.

Island Night Lizard

1. The Navy has proposed measures to avoid and minimize adverse effects to the island night lizard.

2. The Navy is proposing to restore disturbed areas with native species for the island night lizard which should increase its numbers over time on San Nicolas Island;

3. The proposed activities will permanently remove only a small fraction of high-quality island night lizard habitat on San Nicolas Island and across the species' range;

4. Habitat lost through erosion will be minimized when the road shoulders are repaired, storm-water conveyances are improved, and disturbed areas are re-vegetated with native species; and

5. The number of individuals lost as a result of project activities may have a short-term negative effect on the lizard population, however, through monitoring, capture and relocation, along with re-vegetation of disturbed areas, we believe the effects overall would be minor and should not have an overall effect on the species' recovery.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to 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 essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral 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, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act 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 Navy for the exemption in section 7(o)(2) to apply. The Navy has a continuing duty to regulate the activity covered by this incidental take statement. If the Navy fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. To monitor the

impact of incidental take, the Navy must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR 402.14(i)(3)]

Western Snowy Plover

Incidental take of western snowy plovers will be difficult to detect because of the potential difficulty in determining whether any dead bird found died of natural causes or as a result of the Navy's activities. However, any western snowy plovers found within the project area may be subject to being flushed from the area. While such flushing could result in take in the form of harm, harassment, injury, or mortality, the birds are most likely to simply return to their activities and the flushing would not be repeated numerous times over an extended period, so any take that results would be very rare.

Because we anticipate that take is likely to be rare, and take that does occur is likely to go undetected, if one (1) western snowy plover is found dead or injured throughout duration of the project, we consider such incidental take new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Navy must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Island Night Lizard

Island night lizards may be injured or killed by improper handling during relocation efforts, the relocation effort itself, or by being crushed by workers and equipment conducting project related activities. Because of their small body size and tendency to occur in habitat that is difficult to survey (e.g., crevices, under boulders), incidental take of island night lizards may be difficult to detect. However, all island night lizards found within the project area may be subject to take in the form of capture during relocation efforts. Our analysis of the baseline conditions and review of project specific surveys (Fellers and Drost 2011) and project activities described above indicate that up to 614 island night lizards could be captured and relocated during project activities. While capture and relocation is intended to reduce the potential for injury or mortality, injury or mortality would more likely result from implementing the project without relocating individuals out of harm's way. Any island night lizards that evade detection, capture, and relocation, and remain in the action area may be crushed by construction equipment, vehicles, or foot traffic, or may be otherwise injured or killed during the proposed activities. While we cannot estimate how many could be taken as a result of not being relocated, we can anticipate that if the capture threshold of 614 is reached before the project is completed, this means that it is likely that a proportionately larger number are not being captured, and that further reconsideration of the project's effects through reinitiation of this consultation is warranted..

Island night lizards may be injured or killed by improper handling during relocation efforts, the relocation effort itself, or by being crushed by workers and equipment conducting project related activities. Because we anticipate that all island night lizards encountered will be captured and relocated, and given that the estimates for relocation success may range from 25 to 75 percent (154 to 460 lizards respectively), depending on the quality and type of cover provided and many

other variables such as condition of the relocated lizard, weather events, and time of year, take is likely to occur but still be difficult to detect. While we anticipate all 614 individuals present may be taken in the form of capture and relocation, we further anticipate that no more than 460 lizards of those captured would be killed or injured as a result of their relocation. Given the difficulty of detecting island night lizards killed or injured as a result of being handled, we believe that only a small subset of those injured or killed will be found and that those found represent a larger number killed or injured but not found. Therefore, if 25 island night lizards are found dead or injured in any given year as a result of relocation or other project related activities, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Navy must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

REASONABLE AND PRUDENT MEASURES

We believe the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the take of the island night lizard and the western snowy plover:

1. Take of western snowy plovers and island night lizards during project activities must be reduced through well-defined operational procedures, and by using only qualified personnel to conduct activities related to the proposed avoidance and minimization measures.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Navy must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

The Service anticipates that for the entire project duration, no more than 1 (one) western snowy plover will be found dead or injured as a result of project activities, that up to 614 island night lizards will be incidentally taken as a result of their capture, and that no more than 25 island night lizards will be found dead or injured as a result of project activities. The reasonable and prudent measure, with its implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this 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. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

To be exempt from the prohibitions of section 9 of the Act, the Navy must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:

   a) No more than 15 days before the onset of ground disturbance, one or more Service-approved biologist(s) must survey the project area for island night lizards. The biologist(s) must be on site daily until ground disturbance within island night lizard habitat is complete. As proposed by the Navy, the Service-approved biologist(s) will relocate all island night lizards located in harm's way.

   b) We hereby authorize Grace Smith, Martin Ruane, Rebecca Kelley, Valerie Vartanian, Gary Fellers, and Charles Drost to independently monitor, capture, and relocate island night lizards. Ms. Smith, Mr. Ruane, Ms. Kelley, Ms.Vartanian, Mr. Fellers, and Mr. Drost have demonstrable experience with these activities and have previously been approved by the Service for similar work. This authorization is valid only for the subject project as described in Biological Opinion 8-8-12-F-12).

   c) One or more Service-approved biologist must conduct a training session for all project personnel prior to the onset of any ground-disturbing activities within the action area. At a minimum, this training must include a description of the western snowy plover and island night lizard and their habitat, the general provisions of the Act, the necessity for adhering to the provisions of the Act, the penalties associated with violating the provisions of the Act, and the specific measures that are incorporated into the description of the proposed action to avoid and (or) minimize the adverse effects to these species.

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), the Navy must report the progress of the action and its impact on the species to the Service as specified in this incidental take statement. The Navy must provide an annual report to the Service by March 31 following each year in which activities covered by this biological opinion occurred until final project completion. Interim reports are only necessary after incidental take occurs. The reports must document the number of western snowy plovers and island night lizards that were found and the number that were taken during the course of the project; any results from island night lizard post-relocation monitoring, a summary of the effectiveness of the terms and conditions of this biological opinion; a brief discussion of any problems encountered in implementing minimization measures; and any suggestions of how these measures could be changed to improve conservation of this species while facilitating compliance with the Act. This document will assist the Service in evaluating appropriate measures for conservation of these species during future projects.

DISPOSITION OF DEAD OR INJURED SPECIMENS

As part of this incidental take statement and pursuant to 50 CFR 402.14(i)(1)(v), upon locating a dead or injured western snowy plover and/or island night lizard, initial notification within three working days of its finding must be made by telephone and in writing to the Ventura Fish and Wildlife Office (805-644-1766). The report must include the date, time, location of the carcass, a photograph, cause of death or injury, if known, and any other pertinent information.

Care must be taken in handling injured specimens to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state. The finder of injured specimens has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed, unless to remove it from the path of further harm or destruction. Should any western snowy plover or island night lizard survive injury, the Service must be contacted regarding their final disposition. The remains must be placed with educational or research institutions holding the appropriate State and Federal permits, such as, but not limited to, the Santa Barbara Natural History Museum (Contact: Paul Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93460, (805) 682-4711, extension 321). The Navy must make arrangements with the Museum regarding proper disposition of potential museum specimens prior to implementation of any project actions.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We recommend the following:

1. The Navy should conduct additional habitat restoration and erosion control to increase the amount of high quality island night lizard habitat and to create a more continuous corridor of high-quality island night lizard habitat.

2. The Navy should conduct a thorough population survey to better understand the status of the island night lizard on San Nicolas Island.

3. The Navy should fund a study to determine capture and relocation success specific to the island night lizard to provide information on the effects of such actions.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the effects of the San Nicolas Island Roads and Airfield Repairs Project. Reinitiation of formal consultation is required if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may adversely affect listed species or to an extent not considered in this biological opinion; (3) the agency action is subsequently modified in a manner that causes an effect to a listed species that was not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by this action (50 CFR 402.16). In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) will have lapsed and any further take would be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions regarding this consultation, please contact Robert McMorran of my staff at (805) 644-1766, extension 232.

Sincerely,

Diane K. Noda
Field Supervisor

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APPENDIX C
STATE HISTORIC PRESERVATION OFFICER CONCURRENCE

STATE OF CALIFORNIA – THE RESOURCES AGENCY EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

May 28, 2011 Reply in Reference To: USN120126B

Lawrence R. Vasquez
Department of the Navy
Naval Base Ventura County
311 Main Road, Suite 1
Point Mugu, CA 93042-5033

Re: 5090, Ser N45VCS/0979; Repair Paved Roads at Naval Base Ventura County, San Nicolas Island, Ventura County, California

Dear Captain Vasquez,

Thank you for seeking my consultation regarding the above noted undertaking. Pursuant to 36 CFR Part 800 (as amended 8-05-04) regulations implementing Section 106 of the National Historic Preservation Act (NHPA), Naval Base Ventura County is seeking my comments on the effects the proposed undertaking will have on historic properties.

The project consists of repairing previously paved roads on San Nicolas Island. The repair will require landing a barge with necessary material at Coast Guard Beach and Daytona Beach. Existing roads will be ground in place, and then repaved. Failing culverts will be replaced in kind. The airfield runway and shoulders will be repaired, including excavation and placement of fill in the shoulders. Approximately 12.45 miles of roadway, which currently vary in width between 22 and 25 feet, will be widened to a standard width of 25 feet. All road widening areas have been previously surveyed and noted as covered with road base at least 20 inches thick, which will not be completely disturbed during grading and preparation for paving. Area of Potential Effects will include the entire 12.45 mile length of roadway to a width of 25 feet, the area of the existing airfield, and the barge landing areas on the beaches. In addition to your letter received January 26, 2012, you have submitted the following document as evidence of your efforts to identify historic properties in the APE:

- Cultural Resources Letter Report for Barge Landing and Road and Airfield Repair Project, San Nicolas Island, Naval Base Ventura County, California (Erin King, Tetra Tech, October 2011)

The USN has searched their station records and identified several previous recent inventories within the APE. Fifteen archaeological sites have been identified within the APE, however they are currently buried underneath the existing road fill which will not be disturbed by the undertaking. Seventy-six built environment resources have been identified within the APE, however none of these will be directly or visually impacted. The USN has committed to flag the portions of sites not currently buried by road fill with a buffer to ensure avoidance. Additionally, the USN has committed to have an archaeological monitor present during the undertaking.

The USN has not indicated if it has consulted with Native American tribes and interested Native American parties (as listed by the Native American Heritage Commission contact list). Please ensure that this has occurred prior to project implementation.

One archaeological site, CA-SNI-94, has been previously recorded within the APE. The site is reported as completely disturbed or destroyed, and once consisted of 20 meta-volcanic flakes and one sandstone mono. The USN has determined this site is not eligible for the National Register of Historic Places based on its poor integrity due to its disturbed nature. The USN also has record of 20 buildings within or near the APE. Only one building, N138, has been determined eligible with SHPO consensus. Three buildings (N162, N182, and N183) are being assumed eligible for the purposes of this undertaking. The USN has determined that 16 other buildings (N64A, N114, N114B, N158, N159, N160, N186, N187, N200, N212, N226, N232, N233, N265, N280, and N282) are not eligible for the NRHP. No new historic properties were located during a field survey of the APE.

Based on your identification efforts, pursuant to 36 CFR 800.5 (c)(1), I concur with the USN determination of No Adverse Effects.

Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the USN may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions or concerns, please contact Trevor Pratt of my staff at (916) 445-7017 or at email at tpratt@parks.ca.gov.

Sincerely,

Jenan Saunders
(for) Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

APPENDIX D
CONCURRENCE LETTER AND THE COASTAL CONSISTENCY NEGATIVE DETERMINATION

STATE OF CALIFORNIA—NATURAL RESOURCES AGENCY EDMUND G. BROWN, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400
TDD (415) 597-5885

April 11, 2012

L.R. Vasquez, Captain
Department of the Navy
Naval Base Ventura County
Attn: Valerie Vartainian
311 Main Road, Suite 1
Point Mugu, CA 93042-5033

Re: **ND-012-12** U.S. Navy, Negative Determination, San Nicolas Island Road and Airfield Repairs, Ventura Co.

Dear Captain Vasquez:

On April 3, 2012, after several pre-submittal coordination conferences with our office, the Navy submitted the above referenced Negative Determination for an infrastructure repair project on San Nicolas Island (SNI). The repairs are needed due to the current degraded condition of roads, culverts, and the airfield on the island. The Navy considers the work critical to maintaining mission readiness. The current degraded road is a safety concern for ordnance and operations transport; sinkholes and surface deformations on the airfield pose a safety and operational hazard to mission-critical daily flights; and many culverts under the roads and runway at the airfield are not functioning properly. Because the supply pier at Daytona Beach currently used to transfer supplies to the island is not designed to handle the large volumes of heavy aggregate that will be needed, the project also includes temporary beach area modifications to accommodate the barge landings at Daytona and Coast Guard Beaches (located on the eastern side of the island).

The project would occur in phases over a 5-year period. Roadwork would involve 12.45 miles of road repairs and 17 culvert repairs, together necessitating 43,500 tons of aggregate. This work would occur within existing disturbed areas. Airfield repairs would involve 151,500 tons of aggregate. Barge landings would involve up to four deliveries per year. Shipping barges would anchor offshore and offload aggregate onto smaller "tender" barges capable of landing. Aggregate transfer would occur via conveyor belts or loaders. Once transferred to shore, aggregate would be loaded onto trucks and taken to various staging areas on the island. The project also includes construction of a temporary asphalt batch plant.

The island is off limits to the public due to military security needs, and the project would not affect access and recreation. Sensitive habitat in the barge landing area potentially includes snowy plover foraging and marine mammals hauling out on the beach. Barge landings would not occur during the plover nesting or pinniped breeding seasons. Pinnipeds in the area are used to barge landings, and the Navy has shown it can successfully temporarily relocate pinnipeds if necessary without adverse effects. Noise levels would not be significant or adverse. Water quality would be protected through use of Best Management Practices (which include measures to prevent spillage of aggregate during the barge to barge transfer process, including but not limited to the use of a tarp or other barrier between the two barges to capture accidental spillage). Additional habitat protection measures, worked out in consultation with the U.S. Fish and Wildlife Service, include:

1. A qualified biologist will oversee avoidance and minimization measures. If handling or potential disturbing of endangered species is required, the qualified biologist will be approved by the Fish and Wildlife Service to conduct the activities pursuant to the Biological Opinion. Construction areas will be marked and flagged. The biologist will provide training for all project personnel.

2. Removal of unnecessary predator perches.

3. Revegetation monitoring, including: (a) if areas have not revegetated, re-seeding with native species seed; and (b) removal of invasive species (quarterly for 2 years).

4. Surveying beach areas for nesting plovers before, and the morning of, barge landing. If nesting occurs within 1,000 ft. of project area, the biologist will remain onsite for monitoring. If nesting occurs within 500 ft. of project area, an alternate beach will be used that has no nesting within 500 ft. of that area. If foraging or roosting occurs within 100 ft., unloading and heavy equipment operations will be suspended until birds vacate the 100 ft. buffer.

5. Surveying for island night lizards (INL), capturing and relocating high risk individuals (no more than 15 days before onset of ground disturbance); biological monitoring of any moderate to high density INL habitat; staging of materials off ground, on pallets, and limiting them to the designated staging areas; avoidance of vegetation clearance in high probability INL areas (between the sensitive period of Sept. 1 to Oct. 31).

6. Annual reporting, and, if any incidental take of snowy plovers or island night lizards occurs, interim reporting to the Fish and Wildlife Service and implementation of remedial measures and/or project modifications, as warranted.

7. As suggested by the Fish and Wildlife Service (in the form of "conservation recommendations)," continuation of past Navy programs and monitoring (discussed in the Navy's SNI Integrated Natural Resources Management Plan (INRMP)), including additional habitat restoration and erosion control efforts to improve INL habitat.

With the above measures, the Commission staff **agrees** with the Navy's determination that the proposed project would not adversely affect coastal zone resources. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Mark Delaplaine of the Commission staff at (415) 904-5289 if you have any questions regarding this matter.

Sincerely,

(for) CHARLES LESTER
Executive Director

cc: Ventura District Office
Navy Region Southwest
N40 Environmental NEPA
Box 81 Attn: Suzanne Smith
937 N. Harbor Dr.
San Diego, CA 92132