



## Memorandum

To: Rhode Island Department of  
Transportation  
Two Capitol Hill  
Providence, RI 02903

Date: March 15, 2019

Project #: 72900.00

From: VHB

Re: Rare, Threatened, and Endangered Species Draft Technical  
Memorandum

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# 1. Introduction

## Project Background

The Claiborne Pell Newport Bridge (Pell Bridge) carries State Route 138 between Jamestown and Newport and is the only road connection between Jamestown and Aquidneck Island. The Proposed Action Alternative of the Pell Bridge Interchange Project (Project) would provide direct connection from the northern part of the City to the downtown area, reduce queued vehicle traffic onto the Pell Bridge, reduce traffic in downtown Newport, and provide a portion of the bicycle and pedestrian facilities envisioned in the Aquidneck Island Transportation Study. The Proposed Action (Project) would occur in the City of Newport and Town of Middletown, Rhode Island. In accordance with the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) is being developed to evaluate the impacts of construction and operation of the re-designed interchange on environmental resources.

## Purpose and Need

### Purpose of the Project

The purpose of the proposed Project is to:

- › Reconfigure the Pell Bridge approach roads and ramps to improve traffic circulation and safety.
- › Increase connectivity to downtown Newport.
- › Support the City of Newport's economic development plan by providing land area for redevelopment.

### Need of the Project

Traffic volumes on Aquidneck Island bridges and roadways have increased significantly over the past 40 years. This traffic increase is attributable to many factors, including more households spread among different locations on the Island, increasing levels of automobile ownership, changing commuting patterns, and increased tourism. Ongoing safety concerns in the Island community have been elevated following several pedestrian fatalities along Island roadways, which were caused in part by the increasing difficulty in safely crossing major streets.

## Proposed Action

RIDOT proposes the following changes to Pell Bridge Interchange System:

- Removal of the ramping system to/from Pell Bridge. The southbound off-ramp from the Pell Bridge to downtown Newport would be removed and a new loop off-ramp constructed to serve downtown traffic. The new ramp

1 Cedar Street  
Suite 400  
Providence, RI 02903-1023  
P 401.272.8100

would connect to the proposed JT Connell Highway Extension and would include a new bridge structure spanning over the existing JT Connell Highway.

- Construction of a new connection from JT Connell Highway (near the Pell Bridge ramps) to Halsey Street and Admiral Kalbfus Road, following an alignment along the south and east edges of the DPW property and west of Newport Grand. This new roadway would provide an alternate connection to/from the JT Connell Highway/Farewell Street area to Admiral Kalbfus Road and the potential redevelopment areas.
- Construction of a shared-use path and the development of rail-shuttle service to Downtown Newport. Service along a portion the Newport and Narragansett Bay Railroad right-of-way (ROW) would be restored to provide shuttle service between a park-and-ride that would be constructed off of JT Connell Highway and Downtown Newport. This would help to further reduce vehicle traffic in Downtown Newport. Additionally, one of the existing railbeds from the Narragansett Bay Railroad would be converted to a shared-user path that would connect between the park-and-ride and Downtown Newport and provide new recreation opportunities in Newport.
- Road resurfacing of JT Connell Highway. This would occur from the roundabout to the intersection with West Main Road (Route 114) in Middletown, Rhode Island.

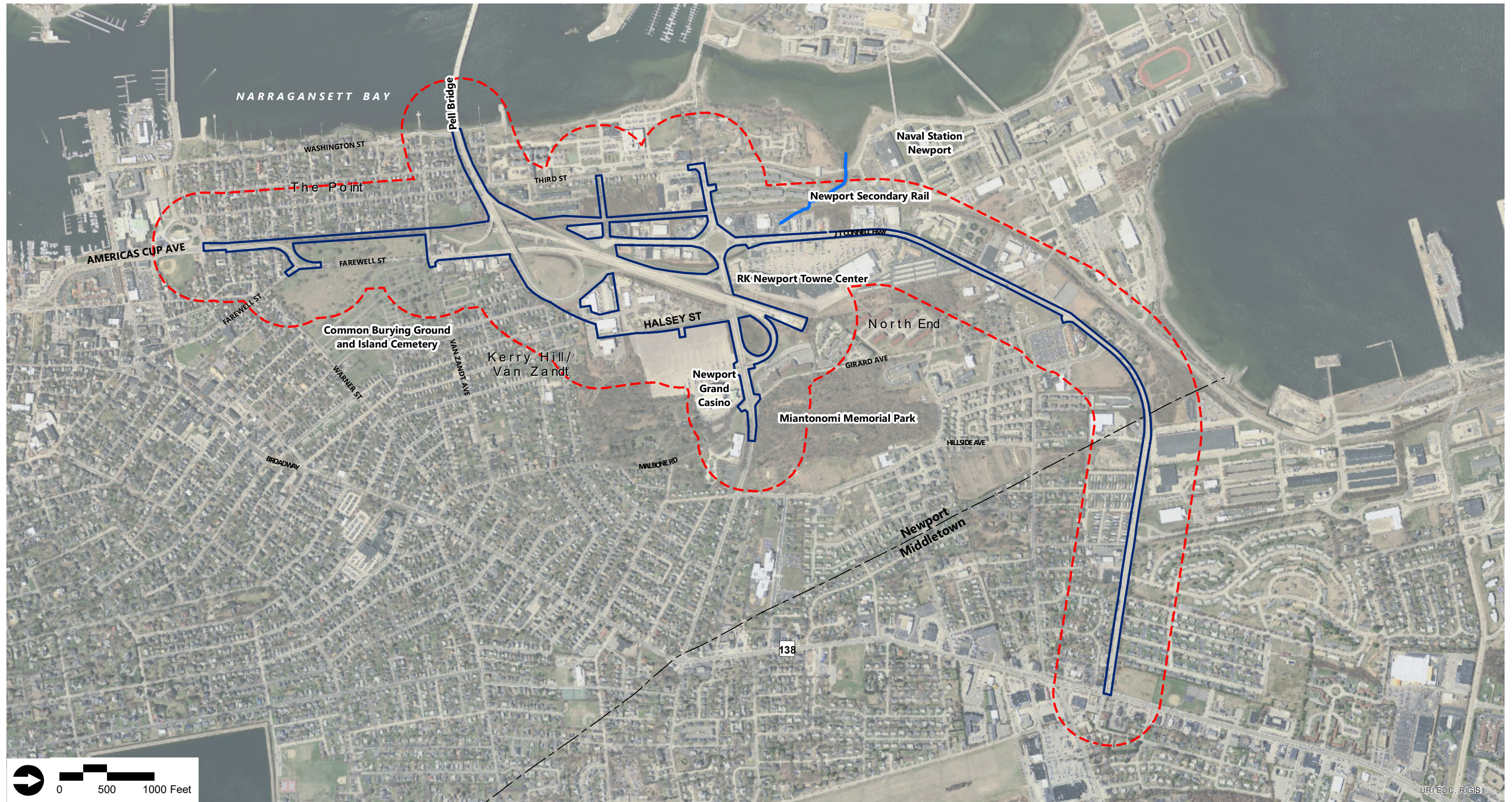
## **No Action Alternative**

The No Action Alternative represents a baseline condition against which the impacts of the project are assessed. Under the No Action Alternative, the Pell Bridge interchange would not be reconfigured, and no improvements would be made to the existing structure. Lane and ramp configuration would be the same as those that exist today. Although this alternative is inconsistent with the project purpose and need and would not address the Pell Bridge interchange and off-ramp system's existing condition, congestion, and safety issues, its evaluation is required by NEPA.

## **2. Study Area and Methodology**

The Project encompasses an area of 260 acres, which includes the existing exit and on-ramps to the Pell Bridge, Routes 138 and 238, Admiral Kalbfus Road, and JT Connell Highway. The Study Area includes the Project's limits of disturbance (LOD) and a corridor width of 200 feet on either side of the LOD (see Figure 1). The Study Area was defined based on the extent of the Project Area and the land adjacent to it that may experience project impacts that have the potential to affect any federal or state-listed species and their associated habitat.





Source: RIDOT, RIGIS, VHB Surveys conducted August 6-8, 2018

**Legend**

- - - Study Area
- Delineated Stream
- Limit of Disturbance
- - - Municipal Boundary



Figure 1  
Study Area for Rare, Threatened, and Endangered Species

**Reconstruction at Pell Bridge Ramps  
Newport/Middletown, Rhode Island**



### 3. Applicable Regulations and Criteria

This section identifies the federal and state environmental permits, regulatory reviews, and approvals concerning rare, threatened, and endangered species that apply to the project.

#### Federal Regulations

##### Endangered Species Act

The Endangered Species Act (ESA; 16 U.S.C. § 1531 et seq.), passed by Congress in 1973, provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found (USFWS, 2017a). Under Section 7 of the ESA, federal agencies must consult with the United States Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA) when any action the agency carries out, funds, or authorizes (such as through a permit) may affect a listed endangered or threatened species (USFWS, 2017a; NOAA Endangered Species Conservation). USFWS is responsible for the protection, conservation, and recovery of listed terrestrial, avian, and freshwater aquatic species while NOAA National Marine Fisheries Services (NOAA Fisheries) is responsible for endangered and threatened marine and anadromous species under the ESA. The consultation process determines if a proposed action is likely or not likely to adversely affect the listed species.

##### Final 4(d) Rule

As described in further detail in the *Existing Conditions Section*, the federally threatened northern long-eared bat (*Myotis septentrionalis*; NLEB) has the potential to occur within the Study Area. The 4(d) Rule was established in 1975 to extend the protections of the ESA to federally threatened species by directing the USFWS to issue regulations deemed necessary and advisable to provide for the conservation of threatened species (Levin et al., 2018). A Final 4(d) Rule specific to “take” prohibitions of the NLEB was published in the Federal Register on January 14, 2016 (USFWS, 2016). Take prohibitions identified in the Final 4(d) Rule for the NLEB are meant to protect maternity colonies, hibernating bats, and the areas that bats use as they enter and leave hibernation sites. The Final 4(d) Rule allows for take of the species from certain activities that have not been the cause of the species imperilment (USFWS, 2016). Take of a species is considered incidental if the take is incidental to, and not the purpose of, an otherwise lawful activity (e.g. forestry practices; USFWS, 2016).

##### Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703-712), passed in 1918 and amended in 1972 to include birds of prey, makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, or purchase, any migratory bird, or the parts, nests, or eggs of such a bird, except under the terms of a valid permit issued pursuant to federal regulations. USFWS enforces the MBTA (USFWS, 2017b).

##### Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act; 16 U.S.C. 668-668c), enacted in 1940 and amended several times since, prohibits anyone from taking bald or golden eagles. The Act defines “take” as pursue,



shoot at, poison, wound, kill, capture, trap, molest, or disturb. "Disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (USFWS, 2018a).

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## **State Regulations**

### **Rhode Island Endangered Species Act**

The Rhode Island Endangered Species of Animals and Plants Act (RIESAPA; Rhode Island General Law Title 20, Chapter 37) states that no person shall buy, sell, offer for sale, store, transport, export, or otherwise traffic in any animal or plant or any part of any animal or plant whether living or dead, processed, manufactured, preserved or raw (if) such animal or plant has been declared to be an endangered species by either the United States Secretaries of the Interior or Commerce or the Director of Rhode Island Department of Environmental Management (RIDEM).

The Rhode Island Natural Heritage Program (RINHP) was established in 1979 to catalogue the state's rare flora and fauna (RIDEM et al., 2015). The RINHP has since been re-configured as a joint project between RIDEM's Division of Fish and Wildlife (RIDEM DFW), the University of Rhode Island (URI), The Nature Conservancy (TNC), and The Rhode Island Natural History Survey (RINHS). The most up to date list of state endangered (SE), state threatened (ST), state concern (SC), and state historical (SH) species is included in the Rhode Island Wildlife Action Plan (RIWAP; RIDEM, 2015). Records of the state-listed species and their approximate locations are tracked via the Natural Heritage Areas data layer that is available within the RIDEM Environmental Resource Map (RIDEM, 2018) and via the Rhode Island Geographic Information System (RIGIS) database (RIGIS, 2016).

The RINHP defines species ranked as SE as native species in imminent danger of extirpation from Rhode Island. Populations of these species have been reduced to a critically low number or have experienced drastic habitat loss or degradation. Immediate management action is required to prevent extinction in the state. An ST species is a native species that is likely to become SE in the future if current trends in habitat loss or other detrimental factors remain unchanged. In general, these ST species have three to five known or estimated populations and are especially vulnerable to habitat loss. A state SC is a native species (or subspecies) not considered to be SE or ST at the present time, but is listed due to various factors of rarity and/or vulnerability.

SH species are native species that have been documented in the state during the last 100 years, but which are currently unknown to occur.

If any state-listed species occur within a study area and the related proposed action is subject to other environmental regulations promulgated by the RIDEM and/or the Rhode Island Coastal Resources Management Council, then coordination between the RINHP and the regulating agency will be necessary to determine if an effects determination on the state-listed species can be determined based on the project's description or if survey efforts and mitigation are required.

#### **Local Regulations**

There are no local regulations promulgated by the City of Newport or the Town of Middletown that concern rare, threatened, or endangered species. Further, as a state agency, RIDOT is not subject to the requirements of local ordinances.

## **4. Impact Assessment**

### **Methodology**

To assess if any federal or state-listed species are potentially present within the Study Area, the Project Biologist evaluated information from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Tool and the Rhode Island Department of Environmental Management (RIDEM) online-Environmental Resource Map (ERM) and consulted with the RIDEM Division of Fish and Wildlife (DFW) regarding RIDEM's bat survey records.

#### **USFWS IPaC Tool**

The Project Biologist initiated consultation with the USFWS on October 9, 2018 through a request for an official species list from the IPaC Tool and applied the LOD of the Proposed Action as the Project Location. The Official Species List was generated by the New England Ecological Services Field Office, located in Concord, New Hampshire (provided in Appendix A). The species listing is described in the *Existing Conditions Section*.

#### **RIDEM ERM Review**

The Project Biologist conducted a review of state-listed species within the Study Area on October 9, 2018 by reviewing the Natural Heritage Area overlay within the RIDEM Environmental Resource Map. The results are included in the *Existing Conditions Section*.

#### **RIDEM DFW Consultation**

On February 9, 2018, the Project Biologist contacted Charles Brown, a wildlife biologist with the RIDEM DFW who specializes in bat management, to inquire about RIDEM's NLEB survey records within or near the Study Area. Information from this consultation is provided in the *Existing Conditions Section*.



## Existing Conditions

### USFWS IPaC Tool Results

The Official Species List generated by IPaC indicated that there are two listed species with the potential to occur within the Study Area: the NLEB, which is federally threatened, and the roseate tern (Northeastern subspecies; *Sterna dougallii dougallii*), which is federally endangered. Background information for each species is provided below. The Official Species List did not identify any critical habitats within the Study Area.

#### Northern Long-eared Bat Description and Habitat Requirements

The NLEB is a medium-sized bat that was listed under ESA as a threatened species due to drastic population declines of up to 99 percent in the northeast (USFWS, 2015a). This decline has largely been attributed to the disease known as white-nose syndrome (WNS). WNS is caused by a fungus, *Pseudogymnoascus destructans*, which creates a white fuzz on the wings and muzzle of bats and disrupts their hibernation by causing them to become more active during their hibernation period (USFWS, White-Nose Response Team). This increased activity expends their energy supply that is needed to support their hibernation and often results in death (USFWS, White-Nose Response Team). Due to the NLEBs' vulnerability to WNS, other sources of mortality have become potentially important factors in the viability of this species. Other sources of mortality for this species include impacts to hibernacula (winter habitat), the loss or degradation of summer habitat, and wind farm operation (USFWS, 2015a).

According to the most recent (2018) USFWS Summer Survey Guidelines (Guidelines) for NLEB and Indiana bat (*Myotis sodalis*), suitable summer habitat for NLEB consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures (USFWS, 2018b). The NLEB also favors linear features such as fence rows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1,000 feet of other forested/wooded habitat (USFWS, 2018b). Highly developed urban areas are unlikely to be suitable habitat for the bats. Summer roosting habitat is typically occupied from mid-May through mid-August each year, with the pupping season occurring typically from early June through the end of July (USFWS, 2018b).

During their active summer period, NLEB roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). They have also been observed roosting in man-made structures, such as buildings, barns, sheds, cabins, under eaves of buildings, and in bat houses (USFWS, 2018b). Female northern long-eared bats live in fission-fusion societies where females form preferred associations within groups of their own species that vary daily in size and composition as individuals switch roosts (Kunz and Lumsden 2003; Lewis 1995). One study that tracked female northern long-eared bats in Nova Scotia, Canada verified this fission-fusion relationship by radio-tracking 19 females to 53 roost trees in 2006 and 21 females to 46 roost trees in 2007 (Patriquin et al. 2010). The bats switched roosts almost daily and roosted in groups that ranged from one individual up to 67 individuals (Patriquin et al. 2010). Another study that documented colony roosting characteristics found that one roost stayed within an approximately five-acre forested area

(Perry and Thill, 2007). These studies help to underscore that NLEB require a moderately sized forested area to support the colony roosting dynamics.

The Study Area is within a highly-urbanized area of Newport that contains the major interchanges linking to the Newport Pell Bridge, industrial and commercial areas, and residential areas north, south, and west of the interchange area. While there are few contiguous blocks of vegetated habitat within the Study Area, suitable summer habitat as defined by the Guidelines is present within the Study Area. These areas include a privately-owned 15-acre block of forest that is located between the Newport Grand Casino, Malbone Road, and Halsey Street; Miantonomi Memorial Park, a 32-acre public recreational park owned by the City of Newport, located to the east of Girard Avenue; and fragmented forested areas adjacent to roadways and residential areas. According to the Guidelines, trees found in highly-developed urban areas (e.g. street trees and downtown areas) are extremely unlikely to be suitable habitat (USFWS, 2018b).

NLEB spend the winter months in hibernacula that include caves, mines, and other semi-enclosed areas that provide constant temperature, high humidity, and no air currents (USFWS, 2015a). There are no known hibernacula sites within or adjacent to the Study Area.

#### *Roseate Tern Description and Habitat Requirements*

The roseate tern is a medium-sized tern that breeds in tropical locations in the Caribbean and in some scattered colonies in the temperate northern Atlantic (Cornell Lab of Ornithology). The roseate tern is a coastal marine species that breeds along the coasts of the Atlantic, Pacific and Indian oceans on salt marsh islands and beaches with sparse vegetation. The northeastern subspecies of roseate terns was listed as endangered by the USFWS in 1987 (USFWS, 2011). Ninety percent of the roseate tern population breeds in the Cape Cod-Long Island area on rocky coastal islands, outer beaches, or salt marsh islands with protective vegetation to conceal nests (Veit and Petersen, 1993; USFWS, 2001). Roseate terns tend to nest in mixed colonies with common terns (*Sterna hirundo*), which can afford them protection due to the common terns' more aggressive anti-predator behavior (Gochfield et al., 1998). Roseate terns typically arrive at their breeding grounds during the first week of May and begin nesting the following month. Nests are simple depressions in sand, shell, or gravel (New York Department of Environmental Conservation). Eggs are incubated for approximately 23 days by both adults and the young fledge within 22-29 days (New York Department of Environmental Conservation). Roseate terns usually depart for fall migration by the end of September (Veit and Petersen, 1993). There is no suitable roseate tern habitat within the Study Area.

#### *MBTA-protected Species*

The Resources List prepared by IPaC listed 27 migratory birds (Table 2-1) that are protected by the MBTA that have the potential to occur within the Study Area. These 27 species are of particular concern either because they are listed on the USFWS Birds of Conservation Concern (BCC) list or because of other regulations that warrant consideration for the species, such as the Eagle Act. The BCC list was created because of a 1988 amendment to the Fish and Wildlife Conservation Act that mandated that USFWS identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA (USFWS, 2015b).



**Table 2-1 Migratory Bird Species Designated as BCC with the Potential to occur in the Study Area**

Species	Probability of Presence Dates <sup>1</sup>	Breeding Season <sup>2</sup>
American Oystercatcher ( <i>Haematopus palliatus</i> )	Late March through Mid-September	Apr 15 – Aug 31
Bald eagle ( <i>Haliaeetus leucocephalus</i> ) <sup>3</sup>	Late July	Oct 15-Aug 31
Black skimmer ( <i>Rynchops niger</i> )	Early October	May 15 - Sept 30
Black-billed cuckoo ( <i>Coccyzus erythrophthalmus</i> )	Early May	May 15-Oct 10
Bobolink ( <i>Dolichonyx oryzivorus</i> )	Early May through Mid-June	May 15 - July 31
Canada Warbler ( <i>Cardellina canadensis</i> )	May, Late September and Late October	May 15 - Aug 15
Cerulean Warbler ( <i>Dendroica cerulea</i> )	May	Apr 20 - Jul 20
Dunlin ( <i>Calidris alpina arctica</i> )	End of September	N/A
Kentucky Warbler ( <i>Oporornis formosus</i> )	Early May	Apr 15 - Aug 31
Least Tern ( <i>Sterna antillarum</i> )	Early May through Late August	Apr 15 -Sept 15
Lesser Yellowlegs ( <i>Tringa flavipes</i> )	May - October	N/A
Nelson's Sparrow ( <i>Ammodramus nelsoni</i> )	October - November	May 1 - Sept 1
Prairie Warbler ( <i>Dendroica discolor</i> )	May - September	May 1-July 31
Prothonotary Warbler ( <i>Protonotaria citrea</i> )	Late April - Late May	Apr 1 - Jul 31
Purple Sandpiper ( <i>Calidris maritima</i> )	November - April	N/A
Red-headed Woodpecker ( <i>Melanerpes erythrocephalus</i> )	May	May 1 - Sept 15
Red-throated Loon ( <i>Gavia stellata</i> )	October - April	N/A
Ruddy Turnstone ( <i>Arenaria interpres morinella</i> )	May - October	N/A
Rusty Blackbird ( <i>Euphagus carolinus</i> )	October	N/A
Saltmarsh sparrow ( <i>Ammodramus caudacutus</i> )	June - October	May 1 - Sept 15
Seaside Sparrow ( <i>Ammodramus maritimus</i> )	July	May 1 - Aug 31

Species	Probability of Presence Dates <sup>1</sup>	Breeding Season <sup>2</sup>
Semipalmated Sandpiper ( <i>Calidris pusilla</i> )	May - October	N/A
Short-billed Dowitcher ( <i>Limnodromus griseus</i> )	Jul - Sept	N /A
Snowy owl ( <i>Bubo scandiacus</i> )	November - December	N/A
Whimbrel ( <i>Numenius phaeopus</i> )	September	N/A
Willet ( <i>Tringa semipalmata</i> )	May - Early August	Apr 15 - Aug 15
Wood Thrush ( <i>Hylocichla mustelina</i> )	May through June	May 10 - Aug 31

- 1 The probability of presence is based on survey records by the USFWS and reported via the IPaC output.
- 2 An estimate of the time-frame inside which a given bird species breeds across its entire range which includes the Study Area.
- 3 The bald eagle is not listed as a BCC, but is protected by the Bald and Golden Eagle Protection Act

#### **RIDEM ERM Review Results**

There are no Natural Heritage Areas mapped within the Study Area. Consultation with the RINHP is not necessary for the Proposed Project.

#### **RIDEM DFW Consultation Results**

The Project Biologist consulted with the lead bat biologist, Charles Brown, at the RIDEM DFW in February 2018 to obtain details concerning the RIDEM’s NLEB survey efforts and to ascertain if there are records of NLEB within the Study Area. According to Mr. Brown, the RIDEM DFW has been performing mist net surveys and inspections of hibernacula in Rhode Island since 2011 to perform bat species composition surveys. The RIDEM DFW also bands bats to track population size and movements of different species. Mr. Brown specified that there are no records of the NLEB within the Study Area or within the larger City of Newport. Rhode Island does not host large numbers of hibernating bats because there are no mines or natural caves that bats can use for hibernation. However, some manmade structures within Newport County provide suitable conditions for small hibernacula populations. The only three hibernacula known to host NLEB in Rhode Island are located in Jamestown to the west of the Pell Bridge.

Mr. Brown also indicated that RIDEM does not currently conduct surveys to locate NLEB maternity roosting trees; therefore, no records of known maternity roosting trees are maintained by the RIDEM.

#### **NLEB Acoustic Survey Results**

The Project Biologist conducted Presence/Probable Absence Acoustic Surveys (surveys) targeting NLEB between August 6 and 8, 2018 in support of documentation for the Environmental Assessment. Four full-spectrum acoustic detectors were deployed at four sites in suitable summer habitat within the Study Area in the following locations: the road shoulder of Sycamore Street parallel to Route 138 adjacent to a narrow forested area (Site 1), the highway infield between Route 238 and an abandoned ramp which hosts shrub cover and provides proximity to bridges (Site 2), Girard Avenue adjacent to Miantonomi Park which hosts



forested cover (Site 3), and the road shoulder of JT Connell Highway/Coddington Highway proximate to the Community College of Rhode Island's Newport campus which hosts forested cover adjacent to a field (Site 4) (See Figure 2). All detectors were placed parallel to the tree line for two consecutive detector nights.

Call data were auto-classified with Bat Call Identification (BCID) East Version 2.7d. Species recorded during the survey include big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*). The software did not auto-classify any calls as NLEB or any other *Myotis* species or tri-colored bat (*Perimyotis subflavus*), which is currently being considered for listing under the ESA (USFWS, 2017c). Qualitative analysis confirmed two calls to be the eastern red bat<sup>1</sup>, both during the first night (August 6-7, 2018) of surveying at Sites 2 and 3. The survey results indicate the probable absence of NLEB within the Study Area. The complete Acoustic Survey Report is included in Appendix B and will be submitted to USFWS as part of the Section 7 consultation process.

## Potential Impacts

The proposed Project would be constructed over an approximately three-year period. The potential effects to listed species have been assessed by considering different aspects of the project work. Effects have been considered in terms of direct and indirect impacts, whether an effect is temporary (e.g. experienced only during construction) or permanent (e.g. experienced when the final project is operational), and the magnitude of such an effect.

### Potential Project Impacts on the NLEB

As noted above, suitable summer habitat for the NLEB as defined by the *Guidelines* is present within the Study Area. Disturbance to this habitat has the potential to negatively impact NLEB if present. According to the most recent version of the Programmatic Biological Opinion for Transportation Projects in the Range of Indiana Bat and NLEB (Programmatic Consultation), stressors to NLEB that may occur as part of the proposed Project include tree removal, bridge rehabilitation and removal, lighting, and noise and vibration (Programmatic Consultation; USFWS, 2018d). These potential stressors are evaluated in the following sections.

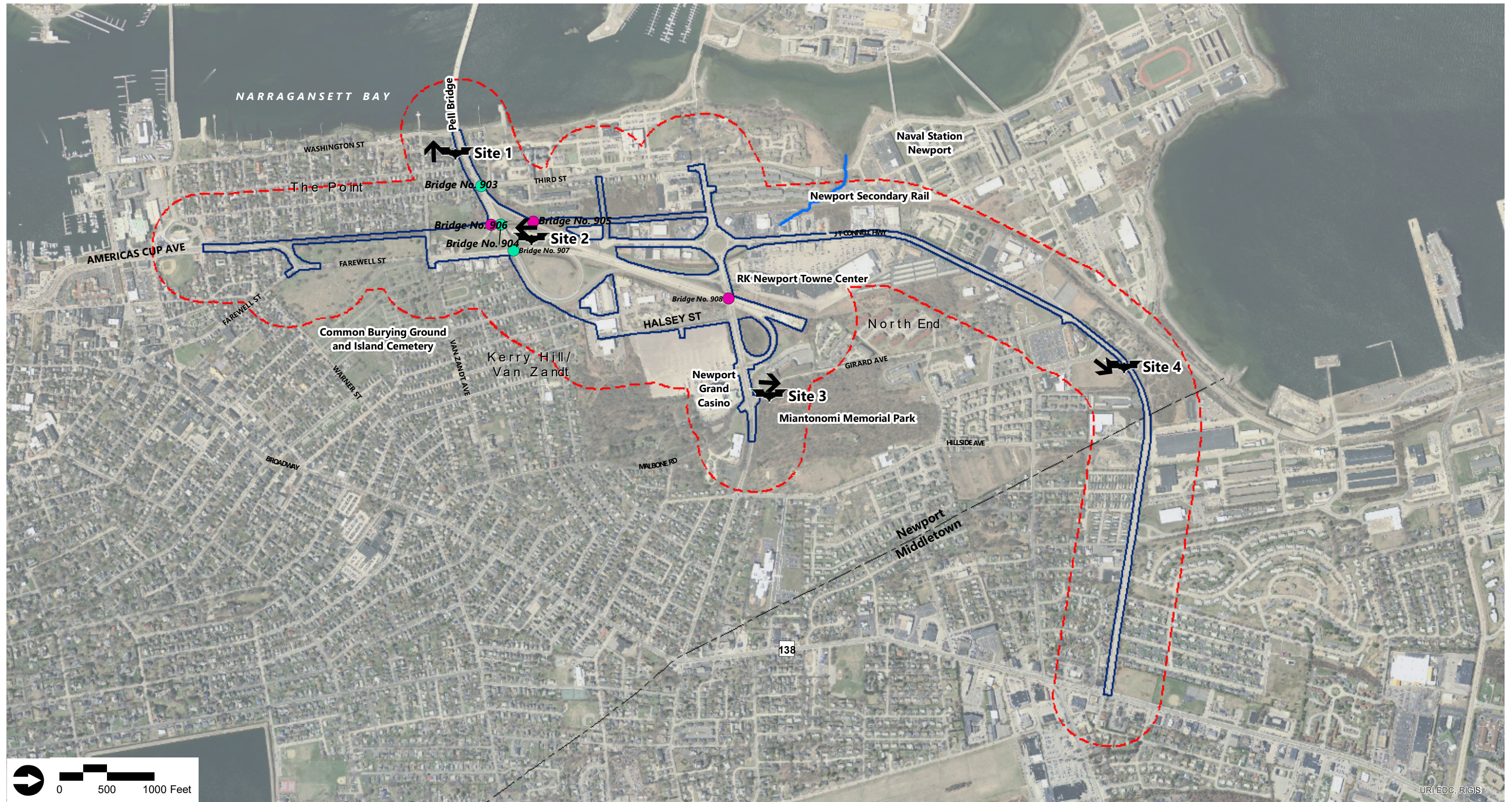
#### Tree Removal

As described in the *Existing Condition Section*, the NLEB is a forest-dependent species, typically roosting in trees that have exfoliating bark, cracks, crevices and/or cavities which provide protected roosting spaces (USFWS, 2015a). The Final 4(d) Rule provides measures that are necessary and advisable to provide for the conservation of the NLEB, and specifically addresses the issue of tree removal as it pertains to NLEB protections (USFWS, 2016). The issue of tree removal has been targeted because trees are used by the NLEB during pupping season, one of their most vulnerable life stages, and tree removal activities have the potential to cause the incidental take of NLEB during this stage of life. Tree removal activities are defined as cutting down, harvesting, destroying, trimming, or manipulating in any other way the trees, saplings, snags, or any other form of woody vegetation likely to be used by the NLEB (USFWS, 2016).

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<sup>1</sup> Eastern red bat calls can sometimes be misclassified by auto-classification software as *Myotis* species so all eastern red bat calls are qualitatively reviewed.





Source: RIDOT, RIGIS, VHB Surveys conducted August 6-8, 2018

**Legend**

- ▭ Study Area
- ▬ Delineated Stream
- ▬ Limit of Disturbance
- Municipal Boundary
- Bridge Scheduled for Rehabilitation
- Bridge Scheduled for Removal
- ➔ Microphone Direction
- ➔ Bat Acoustic Survey Location



Figure 2  
Bat Acoustic Survey Location

**Reconstruction at Pell Bridge Ramps  
Newport/Middletown, Rhode Island**



The 4(d) Rule established two conservation measures regarding tree removal to protect NLEB during the sensitive life stages of the pupping season when the young are non-volant (i.e. cannot fly independently) and during hibernation periods, which also include fall swarming and spring emergence. According to these conservation measures, incidental take from tree removal is prohibited (1) within 0.25 miles of known NLEB hibernacula at any time of year and (2) if a project cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from the known occupied maternity trees, during the pup season (June 1 through July 31) (USFWS, 2018c).

Although the LOD within the Study Area does not include a substantial wooded/forested area, the proposed Project would include limited tree removal to complete certain phases of construction. As described in the consultation with the lead bat biologist at RIDEM DFW, there are no known NLEB hibernacula within the Study Area or within a larger 0.25-mile radius of the Study Area. The only known hibernacula supporting NLEB in Rhode Island are located in Jamestown, over two miles from the Study Area. Therefore, tree removal within a 0.25-mile radius of a known hibernacula is not a concern for the proposed Project. As described above, RIDEM does not have records of NLEB maternity trees in Rhode Island; the USFWS recognizes that the second conservation measure, which prohibits the removal of known maternity roost trees and trees within a 150-foot buffer of such trees, will not protect an unknown maternity roost trees (USFWS, 2018c).

Based on the limited tree removal needed for the Project and the "probable absence" determination of the NLEB acoustic surveys, tree removal activities are not likely to adversely affect the NLEB.

#### Bridge Rehabilitation and Removal

The Project would not impact the Pell Bridge because the LOD stops at the bridge joint connecting the at-grade road structure to the bridge structure. However, there are several bridges within the Study Area that will be either be rehabilitated or removed as part of the Project.

- › Bridge No. 903: four-lane bridge conveying Route 138 off/on ramp over Third Street. This bridge is scheduled to be rehabilitated;
- › Bridge No. 904: two-lane bridge conveying Route 138 off/on ramp over Newport and Narragansett Bay Railroad ROW and an abandoned ramp. This bridge is scheduled to be rehabilitated;
- › Bridge No. 905: one-lane bridge conveying the Route 138 westbound on-ramp to the Pell Bridge over Newport and Narragansett Bay Railroad ROW. This bridge is scheduled to be removed;
- › Bridge No. 906: one-lane bridge conveying Route 138 downtown off-ramp to JT Connell Highway over the Newport and Narragansett Bay Railroad ROW and the road. This bridge is scheduled to be removed;
- › Bridge No. 907: two-lane bridge conveying Route 138 off/on ramp over JT Connell Highway. This bridge is scheduled to be rehabilitated; and
- › Bridge No. 908: two-lane bridge conveying Route 138/128 over Admiral Kalbfus Road. This bridge is scheduled to be removed.

Bridges have been documented as summer day and night roosts for several bat species, including the NLEB (Keeley and Tuttle, 1999). Day roosts provide the bats protection from predators and buffer weather changes while resting or rearing their young. Such roosts are usually in expansion joints or other crevices. In contrast, night roosts, where bats gather to digest their food between nightly feeding bouts, are often found in open areas between bridge support beams that are protected from the wind (Keeley and Tuttle, 1999). Ideal bridge roosting conditions include concrete bridges that have water-sealed vertical crevices, full sun-exposure, and are not situated over busy roadways. In southern states where warmer temperatures are more consistent, bridges may also serve as winter hibernacula; however, in more northern areas of the country, including New England, bats will leave their summer bridge roosts to overwinter in more protected locations (Keeley and Tuttle, 1999). Therefore, it is unlikely that NLEB use any of the bridges within the Study Area as hibernacula due to temperature constraints. It is possible that NLEB may use bridges as day or night roosts during the summer, but somewhat unlikely due to the highly urbanized setting and consistent traffic that may deter roosting.

Bridge condition Inspections were conducted in November 2016 and November 2017 by Project engineers. Each inspection report included detailed photo documentation of the condition of all six bridges located within the Study Area. The Project Biologist conducted a review of the inspection photo sheets and determined that there are potentially suitable roosting conditions present in some of the bridges. However, the highly urbanized setting of the bridges and the traffic disturbance may not be conducive to providing roosting habitat for NLEB or other bat species. Select photos from the bridge inspection reports are provided in the Acoustic Bat Survey Report included in Appendix B. As described in the *Existing Conditions Section*, Presence/Probable Absence Acoustic Surveys were conducted in the Study Area and a probable absence determination was made based on the survey results. As a result, the bridge work that is to occur as part of the proposed Project is not likely to adversely affect NLEB because they are not expected to be present.

#### Artificial Lighting

Depending on the construction operation schedule of the Project, the use of construction-related lighting at night could have a negative impact on NLEB. Bat responses to lighting are species-specific and reflect differences in flight morphology and performance; fast-flying aerial hawking species frequently feed around street lights, whereas relatively slow-flying bats that forage in more confined spaces are often light-averse (Rowse et al. 2016). Many species of bats are insectivorous, including the NLEB, and insects are strongly influenced by lighting. Insectivorous bats that hunt in open spaces above the canopy (open-space foragers) or along vegetation edges such as forest edges, tree lines or hedgerows (edge foragers) are the species most tolerant of artificial lighting. They have evolved traits advantageous for foraging in sparsely structured habitats (Norberg and Rayner 1987; Neuweiler 1989) and so are preadapted to foraging in urban habitats (Rydell 2006; Jung and Kalko 2010; Jung and Threlfall 2016). NLEB commonly forage within forested areas (Owen et al. 2003), but have also been noted to forage along paths, ponds and streams, and at forest edges.

While artificial lighting may provide a foraging benefit for insectivorous bat species, it can also have a negative impact when it comes to other activities. External light disturbance at or near roosting areas can delay emergence and cause bats to miss peak insect prey abundance (Downs et al. 2003). Artificial lighting can

also affect bats' commuting corridors, which are set routes for flying between the roost and foraging area. Light that spills onto bat commuting routes or flyways can cause avoidance behavior for some species and fragment the network of commuting routes (Stone et al. 2009; 2011; 2012).

While there is limited information regarding potential neutral, positive, or negative impacts to NLEB from increased light levels, any potential effects of construction-related lighting are expected to be temporary. The Proposed Action would include new/relocated street lighting for the redesigned interchange as a standard safety measure; the new permanent artificial lighting would result in conditions similar to those that presently exist in the Study Area. Based on the probable absence determination from the NLEB acoustic surveys, neither temporary nor permanent lighting changes are anticipated to adversely affect NLEB.

#### Noise and Vibration

Roadway sounds, both from operation and construction, can create a loud noise environment for bats and potentially interfere with the bats' abilities to hear. Bats depend greatly on their auditory senses to monitor and communicate within the acoustic structure and dynamics of their sound environment through echolocation and passive listening (West, 2016). Road project sound environments include sounds of the pre-project environment (e.g. background noise which includes the combined total of natural sounds and the anthropogenic sounds) coupled with the added sounds that the project generates. Background noise within the Study Area includes traffic noise, which will vary with traffic volume, vehicle speeds, and vehicle mix (e.g. cars and trucks), as well as natural sounds such as surf, wind, and insects. Construction projects are usually implemented in a series of steps or phases, and the noise associated with each phase can vary greatly. Different types of equipment are used for different tasks (individually and in combination), which vary in noise production, duration, and frequency of use (West, 2016).

It is assumed that if NLEB and/or other bats are present within the Study Area, they are acclimated to existing background noise, including traffic noise. Therefore, the primary consideration for the Project is how construction-related noise could potentially affect NLEB. Highway construction noise (e.g., heavy equipment and pile-driving) can potentially affect bats, particularly those species that roost in bridges, culverts, or other highway infrastructure or in nearby buildings, trees, or rock outcroppings. Sudden, loud noises may disturb bats and cause abandonment of roosts (Pearson et al. 1952; Humphrey and Kunz 1976; Kunz 1982; Fenton 1997; Ferrara and Leberg 2005). Chronic disturbance may also alter important colony activity patterns, particularly during the breeding season (Shirley et al. 2001; Mann et al. 2002). Exposure to sudden or chronic sound can cause a shift in hearing sensitivity either temporarily, lasting from seconds to days, or permanently. Other effects of auditory damage include impaired echolocation and impaired capacity for passive listening. Either effect could potentially be life-threatening, as these biological functions are necessary for bats to navigate their flight pathways, identify prey, and detect and avoid predators (West, 2016).

While these negative sound-related effects from construction are a possibility, it should be noted that bats are well adapted morphologically, physiologically, and behaviorally to avoid acoustic trauma. Because they are often confronted with exceptionally loud sounds (e.g., 110 dB) from their own and other bats' echolocation signals, they have evolved very fast protective behavioral and biological mechanisms to prevent sensory overload and damage to the auditory system (Wever and Vernon 1961; Henson 1965; Braun 1994). The effects

of the construction-related noise will be temporary, and normal background noises are expected to resume upon completion of the Project. NLEB are not anticipated to be present within the Study Area based on the results of the acoustic survey; however, even if presence is assumed, the impacts of noise and vibration on NLEB are anticipated to be minor.

#### **Potential Project Impacts to Roseate Tern**

As described in the *Existing Conditions Section*, roseate terns prefer rocky coastal islands or beaches with suitable vegetative cover for nesting. The Study Area does not include this type of habitat; therefore, it is unlikely that roseate tern would occur within the Study Area. It is not expected that the proposed Project will have any effect on this species.

#### **Potential Project Impacts to MBTA-listed Species**

The MBTA-listed species that have the potential to occur in the Study Area have a range of specialized habitat requirements that include open water, forest, grassland and beaches. The Study Area is largely developed with road infrastructure and commercial and residential properties and has limited forested areas. While it is possible for some of the MBTA-listed species to occur within the Study Area during migratory stopovers, the Study Area does not support the range of habitat suited to the MBTA-listed species. These species are not expected to be impacted by the proposed Project.

### **No Action Alternative**

The No Action Alternative would have no direct or indirect impacts to any of the aforementioned species because there would be no change to the existing environment.

## **5. Cumulative Impacts**

As noted in *Section 4*, the proposed Project includes components that would be considered potential stressors to NLEB, however, the acoustic survey results indicate the probable absence of the NLEB, therefore the Project is not anticipated to have any effects on NLEB.

Based on a review of the habitat within the Study Area, the Project is unlikely to have any effect on roseate tern or the MBTA-listed species because the habitat needs for these species are not present within the Study Area.

## **6. Mitigation**

### **NLEB Mitigation Measures**

The proposed Project involves several stressors that have the potential to negatively impact NLEB. However, the results of the Presence/Probable Absence acoustic survey indicate the probable absence of the NLEB within the Study Area. Based on these survey results, RIDOT does not anticipate implementing any mitigation measures to reduce the Project's impact to the NLEB. However, RIDOT may consider implementing the following avoidance and minimization



measures (AMMs) provided within the Programmatic Consultation (USFWS, 2018d) to prevent stress to other bat species that may be present within the Study Area.

### **Tree Removal AMMs**

The word "trees" as used in the AMMs refers to trees that are suitable habitat as defined by the *Guidelines*. The word "documented" means habitat where bats have actually been captured and/or tracked.

Tree Removal AMM 1. Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal in excess of what is required to implement the project safely.

Tree Removal AMM 2. Apply time of year (TOY) restrictions for tree removal (during pupping season between June 1 and July 31), or limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of the existing road/rail surface and outside of documented roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed.

Tree Removal AMM 3. Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g. install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

Tree Removal AMM 4. Do not remove:

- › documented NLEB roosts that are still suitable for roosting; or
- › trees within 0.25 miles of roosts; or
- › documented foraging habitat any time of year.

### **Bridge AMMs**

Bridge AMM 1. To completely avoid direct effects to roosting bats, perform any bridge removal, replacement, and/or maintenance work during the winter hibernation period unless a hibernating colony of bats is present. Also, follow Bridge AMM 4.

Bridge AMM 4. If assuming presence of bats, or if bridge assessment or P/A surveys suggest presence of bats, ensure suitable roosting habit is maintained. Suitable roosting sites may be incorporated into the design of a new bridge.

### **Lighting AMMs**

Lighting AMM 1. Direct temporary lighting away from suitable habitat during the active season.

Lighting AMM 2. When installing new or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the BUG system developed by the Illuminating Engineering Society, the goal is to be as close as possible to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.

### **Noise and Vibration AMMs**

The Programmatic Consultation does not provide AMMs beyond tree removal AMMs (that address temporary noise) that would further reduce the likelihood of stressor responses associated with noise.

### **Roseate Tern and MBTA-listed Species Mitigation Measures**

As described above, the proposed Project is not expected to have any impact on the roseate tern or any of the MBTA-listed species. No mitigation measures are proposed for these species.

## **7. Regulatory Coordination and Required Permits**

Based on the analysis documented above, on January 2, 2019, RIDOT requested concurrence from the USFWS that the Project may affect, but is not likely to adversely affect, the NLEB and roseate tern. USFWS concurred with this determination on March 18, 2019. The letter of concurrence from USFWS is provided as Appendix C to this memorandum.

## **8. Summary of Impacts**

As noted in *Sections 4 and 5*, the proposed Project includes components that would be considered potential stressors to NLEB; however, the acoustic survey results indicate the probable absence of the NLEB. Therefore, the Project is not anticipated to have any effects on NLEB. The Study Area does not provide habitat that is suitable to roseate tern or the MBTA-listed species; therefore, it is unlikely that the Project will have any effect on these species.

Based on these findings, RIDOT does not anticipate implementing any mitigation measures to reduce the Project's impact to the NLEB. However, RIDOT may consider implementing the AMMs provided in *Section 6* to prevent stress to other bat species that may be present within the Study Area.

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Ref: 72900.00  
March 15, 2019

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## Appendix A: USFWS Official Species List



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

In Reply Refer To:

October 09, 2018

Consultation Code: 05E1NE00-2019-SLI-0072

Event Code: 05E1NE00-2019-E-00150

Project Name: Reconfiguration of Claiborne Pell Bridge Interchange

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.



A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

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## Project Summary

Consultation Code: 05E1NE00-2019-SLI-0072

Event Code: 05E1NE00-2019-E-00150

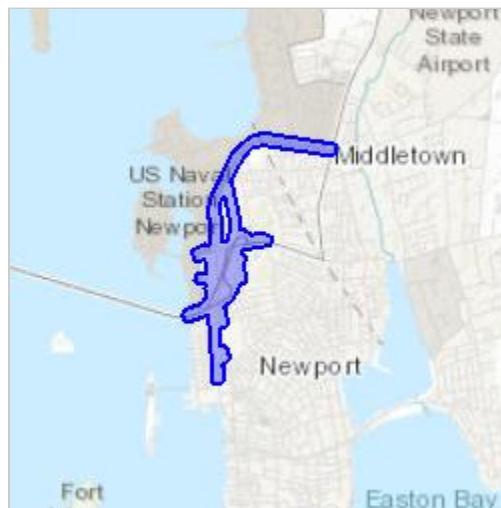
Project Name: Reconfiguration of Claiborne Pell Bridge Interchange

Project Type: TRANSPORTATION

Project Description: The proposed project includes reconfiguring the Pell Bridge Interchange to improve the traffic safety and circulation. The project will also increase the connectivity to downtown Newport and support the City of Newport's economic development plan.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.50585708739086N71.31634465173613W>



Counties: Newport, RI

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## Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

### Birds

NAME	STATUS
Roseate Tern <i>Sterna dougallii dougallii</i> Population: northeast U.S. nesting pop. No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2083">https://ecos.fws.gov/ecp/species/2083</a>	Endangered

### Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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Ref: 72900.00  
March 15, 2019

---

## Appendix B: Acoustic Bat Survey Report





October 19, 2018

Ref: 72900.00

Susi von Oettingen  
U.S. Fish & Wildlife Service  
70 Commercial Street, Suite 300  
Concord, NH 03301

Re: Acoustic Bat Survey for RIDOT for Reconfiguration of Claiborne Pell Bridge Interchange  
Newport, Rhode Island

Dear Ms. von Oettingen:

On behalf of our client, the Rhode Island Department of Transportation (RIDOT), VHB is submitting the results from the Phase 2 Presence/Probable Absence Acoustic Surveys (surveys) for the Northern long-eared bat (*Myotis septentrionalis* or MYSE) performed within the Study Area related to the Reconfiguration of the Newport Claiborne Pell Bridge Interchange (Project). The surveys were conducted between August 6 and 8, 2018 in support of documentation for the Environmental Assessment that is being completed per the National Environmental Policy Act (NEPA). The proposed Project includes reconfiguring the Pell Bridge Interchange to improve the traffic safety and circulation, increase the connectivity to downtown Newport, and support the City of Newport's economic development plan. The overall Project length is approximately eight kilometers (km), but due to the urban nature of the Study Area, the availability of suitable summer habitat is limited (see Figure 1 in **Appendix A**).

VHB biologists conducted acoustic monitoring surveys in accordance with the Phase 2 Study Plan developed for the Massachusetts Department of Transportation submitted to you on June 15, 2018. Four full-spectrum acoustic detectors were deployed at four sites in suitable summer habitat within the Study Area in the following locations: the road shoulder of Sycamore Street parallel to Route 138 adjacent to a narrow forested area (Site 1), the highway infield between Route 238 and an abandoned ramp which hosts shrub cover and provides proximity to bridges (Site 2), Girard Avenue adjacent to Miantonomi Park which hosts forested cover (Site 3), and the road shoulder of J.T. Connell Highway/Coddington Highway proximate to the Community College of Rhode Island's Newport campus which hosts forested cover adjacent to a field (Site 4; See Figure 2 in **Appendix A**). All detectors were placed parallel to the tree line for two consecutive detector nights. Photographs of the survey sites are included in **Appendix B**.

The proposed Pell Bridge interchange reconfiguration will also include the rehabilitation of three bridges and removal of three bridges within the Project Area (see Figure 2 in **Appendix A**). Visual bridge inspections were not conducted at the time of the acoustic surveys; however, bridge condition inspections were conducted in November 2016 and November 2017 by Project Engineers. Each inspection report included detailed photo documentation of the condition of all six bridges located within the Study Area. Photos from these inspections were reviewed for potential roosting suitability and relevant photos have been included in **Appendix B**. There

1 Cedar Street  
Suite 400  
Providence, RI 02903  
P 401.272.8100  
F 401.277.8400

Engineers | Scientists | Planners | Designers

Ms. Susi von Oettingen  
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are potentially suitable roosting conditions present in some of the bridges, however, the highly urbanized setting of the bridges and the traffic disturbance may not be conducive to providing roosting habitat for NLEB or other bat species.

Call data were auto classified with Bat Call Identification (BCID) East Version 2.7d (see results in **Appendix C**). The software did not auto-classify any calls as a *Myotis* bat or tri-colored bat (*Perimyotis subflavus*), which is currently being considered for listing under the ESA<sup>1</sup>. Two calls were confirmed through qualitative identification to be the eastern red bat (*Lasiurus borealis*), both during the first night (August 6-7, 2018) of surveying at Sites 2 and 3. The data provided in this report follows the General Checklist for Acoustic Surveys of Indiana bats (also for MYSE) from the 2018 Range-wide Indiana Bat Summer Survey Guidelines. The field data forms are included in **Appendix D**. The completed U.S. Fish and Wildlife Service's (USFWS) Bat Reporting Form for Acoustic Surveys was submitted to you as an electronic Excel file on August 9, 2018. Results from this survey indicate the probable absence of MYSE at this Project Site.

Please email or call me at (401) 457-2059 if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Chelsea O. Glinka".

Chelsea O. Glinka  
Environmental Scientist

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<sup>1</sup> U.S. Fish and Wildlife Service. 2017c. 90-day Findings for Five Species (including tri-colored bat). Federal Register Vol. 82, Number 423. FR Doc No: 2017-27389. Available at: <https://www.fws.gov/policy/library/2017/2017-27389.html>. Accessed October 10, 2018.



## General Checklist for Acoustic Surveys of Northern Long-Eared Bats

### Acoustic Survey Info

<input checked="" type="checkbox"/> Project Name: <b>Reconfiguration of Claiborne Pell Bridge Interchange</b>	<input checked="" type="checkbox"/> Settings (all settings used for each brand/model of detector. For example, sensitivity, gain, data division, 16k high filter, sample rate, min./max. duration, min. trigger freq., trigger level, etc.): Sampling frequency: 500                      Input gain: 70 PreTrig: Off                                      Trigger level: 160 Recording Length: 5 seconds              Interval: 0 HP-Filter: Yes Auto-Record: Yes Sensitivity: Medium to Very High
<input checked="" type="checkbox"/> Site ID No./Name: <b>RIDOT Project # not assigned yet</b>	
<input checked="" type="checkbox"/> State and County: <b>Newport County, Rhode Island</b>	
<input checked="" type="checkbox"/> Site Lat./Long. Coordinates: Site 1 (D003): 41.499468, -71.321066 Site 2 (D004): 41.50166, -71.317759 Site 3 (D005): 41.50852, -71.311709 Site 4 (D006): 41.51875, -71.312780	
<input checked="" type="checkbox"/> Approx. accuracy of Lat./Long. Coordinates: <b>sub-meter</b>	<input checked="" type="checkbox"/> Survey Start Time (military): <b>19:25</b>
<input checked="" type="checkbox"/> Survey Date(s): <b>August 6-8, 2018</b>	<input checked="" type="checkbox"/> Survey End Time (military) <b>06:17</b>
<input checked="" type="checkbox"/> Person who Selected Acoustic Site(s): <b>Chelsea Glinka (see Appendix E).</b>	<input checked="" type="checkbox"/> Methods used to field-test proper functioning of detector: <b>Finger rub sound test &amp; Event log</b>
<input checked="" type="checkbox"/> Person who Deployed Detector(s): <b>Chelsea Glinka</b>	<input checked="" type="checkbox"/> Were calls collected in Full Spectrum or Zero Crossing? <b>Full spectrum</b>
<input checked="" type="checkbox"/> Detector Brand & Model: <b>Pettersson D500x</b>	<input checked="" type="checkbox"/> Habitat Type and/or Feature Surveyed: Site 1: Road shoulder of Sycamore Street, vegetation includes: Norway maple ( <i>Acer platanoides</i> ), oriental bittersweet ( <i>Celastrus orbiculatus</i> ), common cinquefoil ( <i>Potentilla simplex</i> ), Morrow's honeysuckle ( <i>Lonicera morrowii</i> ). Site 2: Off-ramp infield, vegetation includes: Autumn olive ( <i>Elaeagnus umbrellata</i> ), Multiflora rose ( <i>Rosa multiflora</i> ), oriental bittersweet, common reed ( <i>Phragmites australis</i> ). Site 3: Adjacent to Miantonomi Memorial Park, vegetation includes: Norway maple, Japanese knotweed ( <i>Fallopia japonica</i> ), Morrow's honeysuckle, common blackberry ( <i>Rubus allegheniensis</i> ). Site 4: Road shoulder of J.T. Connell/Coddington Highway, vegetation includes: Multiflora rose, Japanese knotweed, scarlet oak, poison ivy ( <i>Toxicodendron radicans</i> ), Morrow's honeysuckle, red maple ( <i>Acer rubrum</i> ).
<input checked="" type="checkbox"/> Microphone Brand & Model: <b>D500x External</b>	
<input checked="" type="checkbox"/> Detector Microphone Type: <b>Directional</b>	
<input checked="" type="checkbox"/> Type of Weatherproofing (if any): <b>PVC Tube</b>	
<input checked="" type="checkbox"/> Microphone Height above Ground-level Vegetation (m): <b>3</b>	
<input checked="" type="checkbox"/> Distance from Nearest Vegetation or other Obstruction: <b>Approximately 10 feet from tree line</b>	
<input checked="" type="checkbox"/> Horizontal Orientation of Microphone (1-360°) Site 1: 270°, parallel to westbound traffic flow Site 2: 210°, parallel to southbound traffic flow Site 3: 0°, parallel to northbound traffic flow Site 4: 120°, parallel to southeast traffic flow	
<input checked="" type="checkbox"/> Vertical Orientation of Microphone (assuming 0° is parallel with horizon): <b>45° (angled upward)</b>	
<input checked="" type="checkbox"/> Photographs of Detector Set-up at each Site: <b>See photographs in Appendix B</b>	<input checked="" type="checkbox"/> Weather Conditions during Survey Period: August 6-7: Average temp.: 75.74°F, Max temp.: 80.70°F, Min temp.: 74.00°F, Average wind speed: 2.60 mph, no precipitation. August 7-8: Average temp.: 74.70°F, Max temp.: 76.00°F, Min temp.: 73.10°F, Average wind speed: 3.51 mph, no precipitation.



## ACOUSTIC ANALYSIS INFO

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- Program used to convert Full Spectrum to Zero Cross:  
BCID East V 2.7d

---

  - Filter(s) used (if any) and parameters used (e.g., CFRead, noise, bug, etc.) Files were scrubbed and attributed using SonoBat D500X File Attributer 2.6.vi, set to medium: accepts all but poor-quality calls; accepts some noise with tonal content, include signals from 5-20kHz.

---

  - Name of Service-approved Bat ID Software Program(s) and Version(s) used and Candidate program(s) (if used)  
BCID East 2.7D

---

  - Program Settings (if applicable):
    - BCID
      - Min. # of pulses for species ID-0
      - Min. # of pulses per group ID-0.00%
      - Min. discrim. prob. for species ID-0
      - Other relevant settings affecting ID: BCID set to Rhode Island species setting
      - Suite of species/groups included in program analysis: EPFU, LANO, LABO, LACI, MYLU, MYSE, MYSO, PESU (see species key in Appendix A).

---

  - Table summarizing Number of Calls ID'd for each Species/Site/Night/Program (including MLE p-values):  
See Appendix C

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  - If Qualitative Analysis was conducted, include Number of Calls Confirmed through Qualitative ID for each Species/Site/Night: BCID did not auto-classify any high frequency, *Myotis sp.*, or PESU calls. Qualitative analysis was verified two LABO calls.

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  - Full Name of Person(s) who conducted Qualitative Analysis: Meghan Lout, CWB (Appendix E)

---

  - Acoustic Report Appendices:
    - Figure of project area & survey locations: Appendix A
    - Site Photographs: Appendix B
    - Acoustic analysis results: Appendix C
    - Field Data Form: Appendix D
    - Resume of qualified individuals: Appendix E
    - Event Log: Appendix F
-

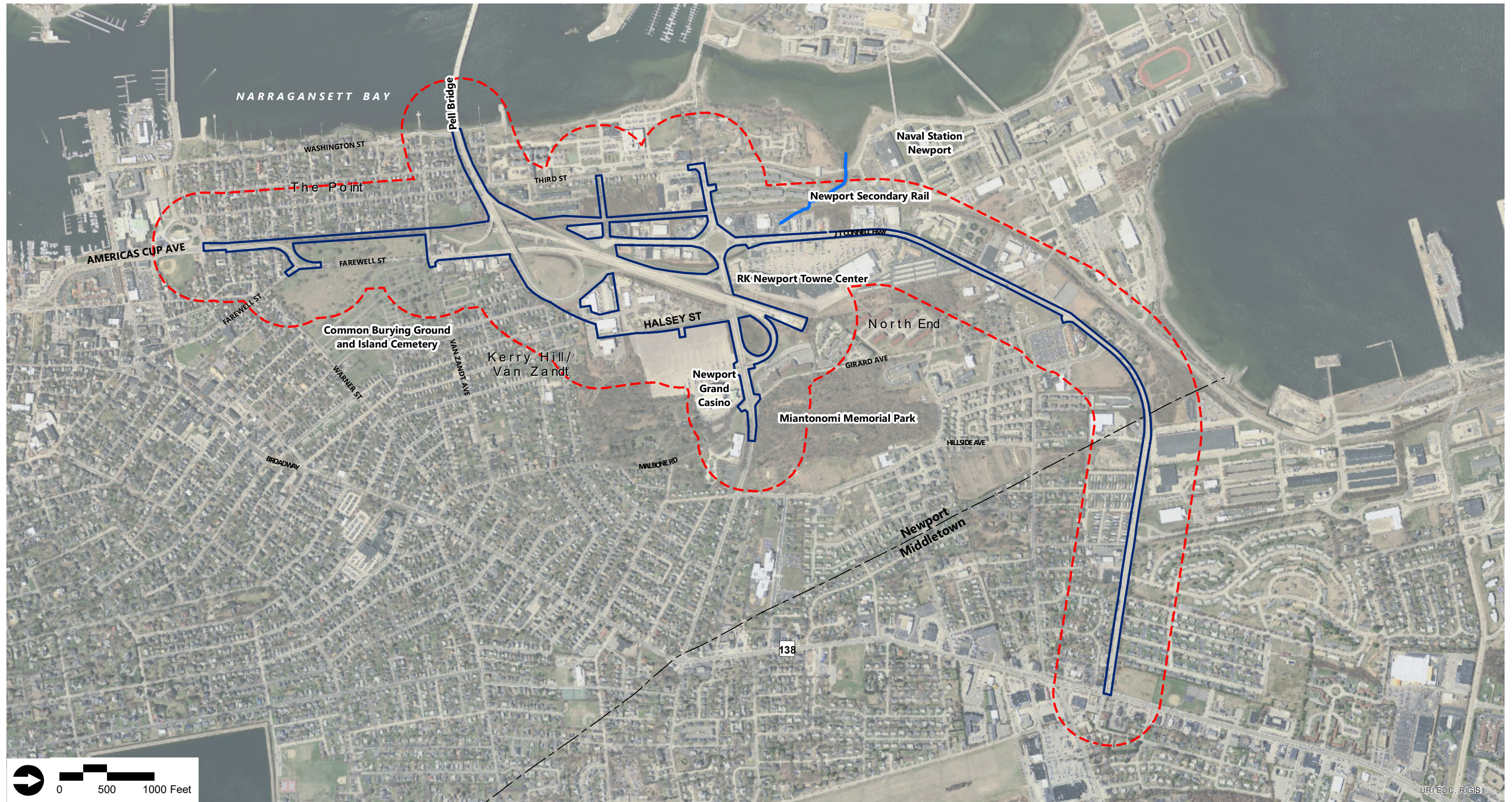
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## Appendix A: Site Figures





Source: RIDOT, RIGIS, VHB Surveys conducted August 6-8, 2018

**Legend**

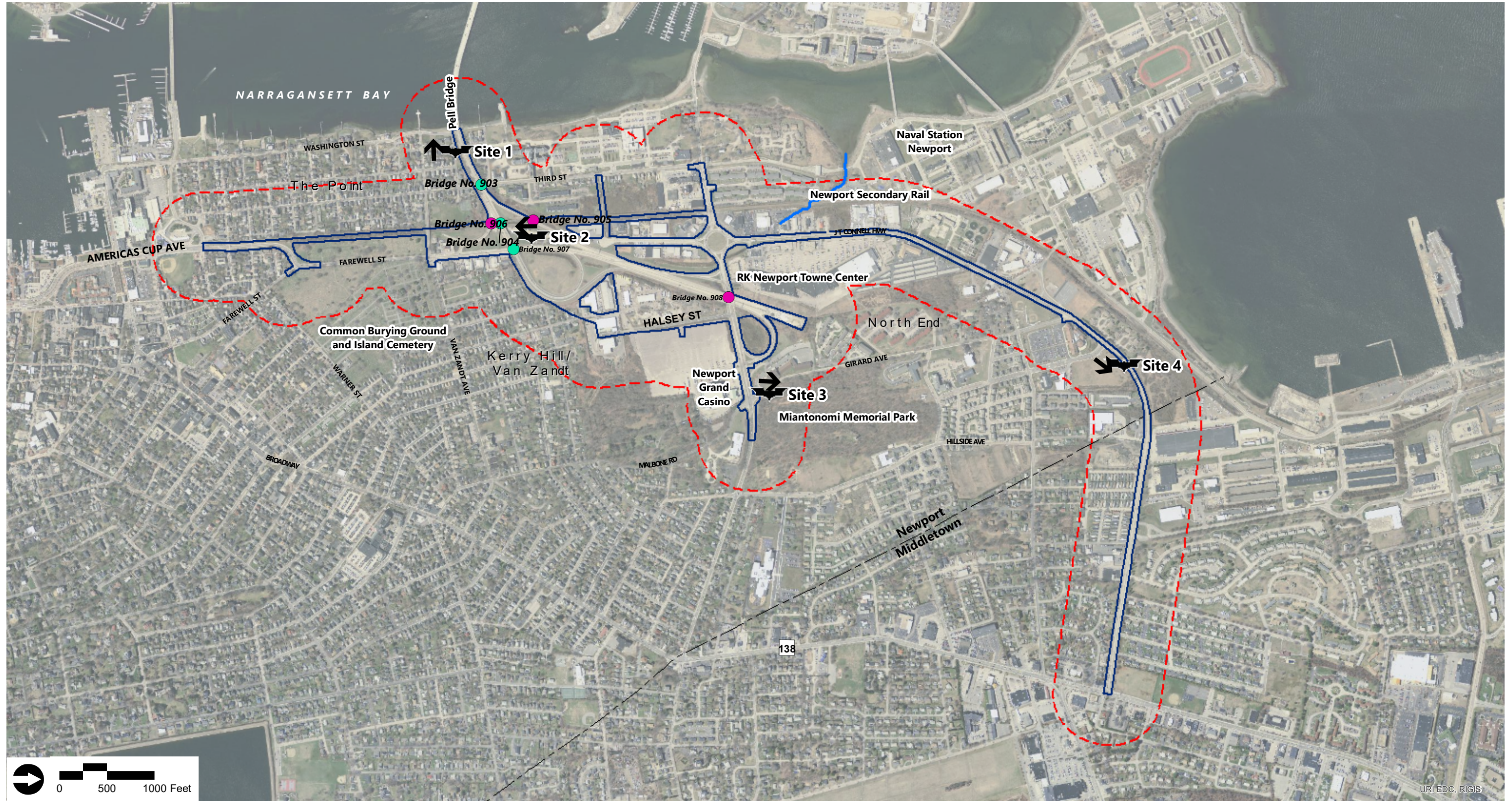
- - - Study Area
- Delineated Stream
- Limit of Disturbance
- - - Municipal Boundary



Figure 1  
Study Area for Rare, Threatened, and  
Endangered Species

**Reconstruction at Pell Bridge Ramps  
Newport/Middletown, Rhode Island**





Source: RIDOT, RIGIS, VHB Surveys conducted August 6-8, 2018

**Legend**

- - - Study Area
- Limit of Disturbance
- - - Delineated Stream
- - - Municipal Boundary
- Bridge Scheduled for Rehabilitation
- Bridge Scheduled for Removal
- ➔ Microphone Direction
- ➔ Bat Acoustic Survey Location



Figure 2  
Bat Acoustic Survey Location

**Reconstruction at Pell Bridge Ramps  
Newport/Middletown, Rhode Island**



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## Appendix B: Site Photos



**Photo 1:** An easterly view of detector # D003 on the northern shoulder of Sycamore Street. The detector was set up for two consecutive survey nights from August 6 to August 8, 2018. The cone of detection was oriented to the west to be parallel to the traffic flow and minimize extraneous noise from passing vehicles.



**Photo 2:** A view looking north towards the detector. The detector was set up approximately 8-feet from the road edge.





**Photo 3:** A southerly view of detector # D004 setup on the highway infield between Route 238 and an abandoned ramp. The detector was set up for two consecutive surveys nights from August 6 to August 8, 2018. The cone of detection was oriented to the south to be parallel to the traffic flow and minimize extraneous noise from passing vehicles.



**Photo 4:** A view looking east towards the detector. The detector was set up approximately 50-feet from Route 238 and 20-feet from the abandoned ramp, respectively.





**Photo 5:** A northeasterly view of detector # D005 on the eastern shoulder of Girard Avenue adjacent to Miantonomi Park. The detector was set up for two consecutive surveys nights from August 6 to August 8, 2018. The cone of detection was oriented to the north to be parallel to the traffic flow and minimize extraneous noise from passing vehicles.



**Photo 6:** A view looking south towards the detector. The detector was set up approximately 20-feet from the road edge.





**Photo 7:** A northeasterly view of detector # D006 on the eastern shoulder of Coddington Highway. The detector was set up for two consecutive surveys nights from August 6 to August 8, 2018. The cone of detection was oriented to the northeast to be parallel to the traffic flow and minimize extraneous noise from passing vehicles



**Photo 8:** A view looking west towards the detector. The detector was set up approximately 10-feet from the road edge.



## Bridge Inspection Photos



**Photo 1:** A view of Bridge No. 903 looking south. Bridge No. 903 is a four-lane bridge conveying Route 138 off/on ramp over Third Street. This bridge is scheduled to be rehabilitated.  
*Photo date: November 2017*



**Photo 2:** A view of the underside of Bridge No. 903. The bridge deck is concrete supported by steel girders.  
*Photo date: November 2017*



**Photo 3:** A view of the steel girder and bearing at the east abutment. The crevices in this section of the bridge may provide limited roosting opportunities for bats.

*Photo date: November 2017*



**Photo 4:** A view of Bridge No. 904 looking northeasterly from the abandoned ramp. Bridge No. 904 is a two-lane bridge that conveys Route 138 off/on ramp over Newport and Narragansett Bay Railroad ROW and an abandoned ramp. This bridge is scheduled to be rehabilitated.

*Photo date: November 2017*





**Photo 5:** A view of the underside of Bridge No. 904. The bridge has a reinforced concrete deck supported by seven steel girders. The underside provides limited suitable roosting space.  
*Photo date: November 2017*

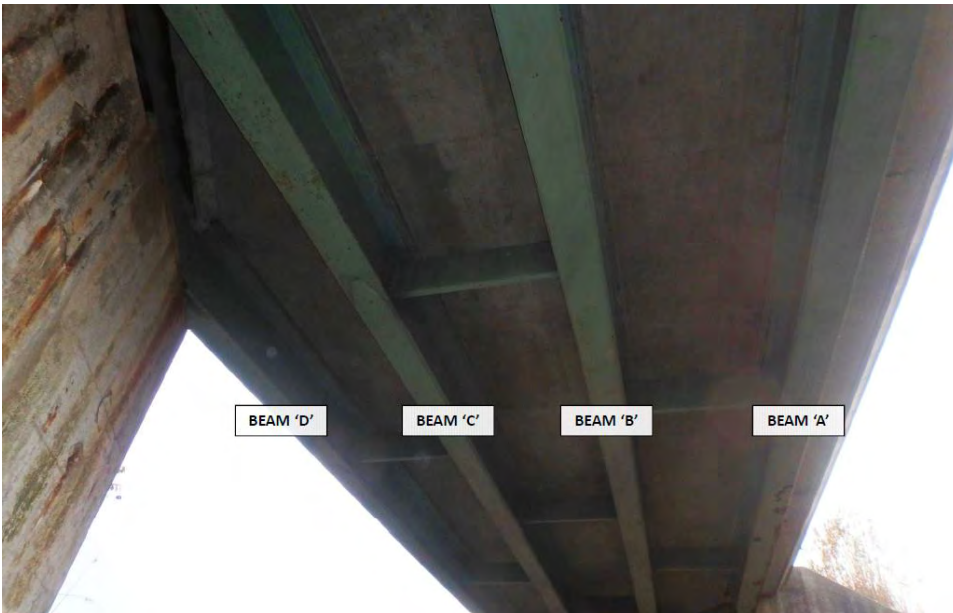


**Photo 6:** View of the south face of girder "G" at the east abutment of Bridge No. 904. There are narrow gaps between the face of the backwall and the backside of the steel girders that could provide potential roosting areas.  
*Photo date: November 2017*



**Photo 7:** A view of Bridge No. 905 looking north. Bridge No. 905 is a one-lane bridge conveying the Route 138 westbound on-ramp to the Pell Bridge over Newport and Narragansett Bay Railroad ROW. This bridge is scheduled to be removed.

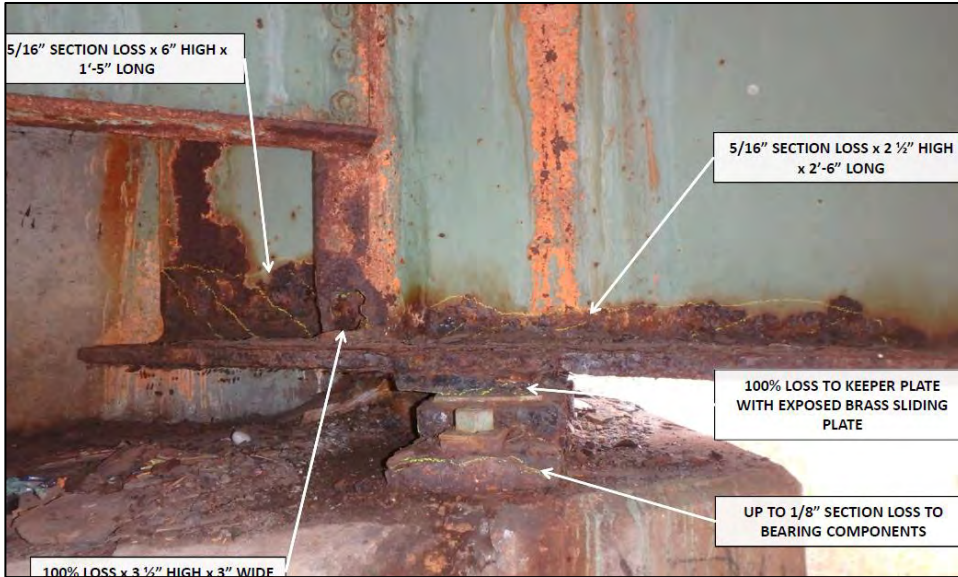
*Photo date: November 2016*



**Photo 8:** A view of the underside of Bridge No. 905. The bridge has a reinforced concrete bridge deck supported by four steel girders. There is limited suitable roosting space available.

*Photo date: November 2016*





**Photo 9:** A view of one of the beams at the west abutment on Bridge No. 905. There are spaces between the beam seat and steel girder that could potentially provide roosting space for bats.

*Photo date: November 2016*



**Photo 10:** A view of Bridge No. 906 looking south. Bridge No. 906 is a one-lane bridge that conveys Route 138 eastbound to the Downtown off-ramp that connects to J.T. Connell Highway. The bridge spans the Newport and Narragansett Bay Railroad ROW and an abandoned ramp. This bridge is scheduled to be removed.

*Photo date: November 2017*





**Photo 11:** A view of the underside of Bridge No. 906 looking towards the east abutment. The bridge has a reinforced concrete deck supported by four steel girders. The underside provides limited suitable roosting space.  
*Photo date: November 2017*



**Photo 12:** A view of Bridge No. 907 looking northerly. Bridge No. 907 is a two-lane bridge conveying Route 138 off/on ramp over J.T. Connell Highway and it is scheduled to be rehabilitated.  
*Photo date: November 2017*



**Photo 13:** A view of the underside of Bridge No. 907 looking east. The bridge has a reinforced concrete deck that is reinforced by seven steel girders. The underside provides limited suitable roosting space for bats.

*Photo date: November 2017*



**Photo 14:** A view of a beam seat at one of the abutments. There are narrow gaps between the backside of the girder and the face of the backwall and between the bottom of the girder and top of the bridge seat. These gaps provide limited roosting capacity for bats.

*Photo date: November 2017*





**Photo 15:** A view of Bridge No. 908 looking south. Bridge No. 908 is a two-lane bridge conveying Route 138/238 over Admiral Kalbfus Road. This bridge is scheduled to be removed.  
*Photo date: November 2016*



**Photo 16:** A view of the underside of Bridge No. 906. This bridge has a reinforced concrete deck supported by steel girders.  
*Photo date: November 2016*



**Photo 17:** A view of one of the girder ends at the west abutment. There are narrow gaps between the backside of the girder and the face of the backwall and between the bottom of the girder and the top of the bridge seat that may provide potential roosting spaces for bats.

*Photo date: November 2016*



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## **Appendix C: Acoustic Analysis Results from BCID East V. 2.7d and Qualitative Review**





**Table C-1 Bat Species Key**

Species Abbreviation	Scientific Name	Common Name
EPFU	<i>Eptesicus fuscus</i>	Big Brown Bat
LABO	<i>Lasiurus borealis</i>	Eastern Red Bat
LACI	<i>Lasiurus cinereus</i>	Hoary Bat
LANO	<i>Lasionycteris noctivagans</i>	Silver-haired Bat
MYLU <sup>1</sup>	<i>Myotis lucifugus</i>	Little Brown Bat
MYSE <sup>1</sup>	<i>Myotis septentrionalis</i>	Northern Long-eared Bat
MYSO <sup>1</sup>	<i>Myotis sodalis</i>	Indiana Bat
NYHU <sup>1</sup>	<i>Nycticeius humeralis</i>	Evening Bat
PESU <sup>1</sup>	<i>Perimyotis subflavus</i>	Tri-colored Bat
UNKN	-	Unknown Bat

<sup>1</sup> The species was not detected during acoustic surveys.

**Note:** No bat calls were recorded for Detector # D003 (Site 1), D005 (Site 3), and D006 (Site 4) for the detector-night of August 7-8, 2018.

**Table C-2 Species Identification from the Detector Night August 6-7, 2018 using Detector # D003 at Site 1**

	Species Identification <sup>1</sup>		Frequencies	Total # Calls
	EPFU	LANO	LOW	
Number of Calls	9	8	17	17
Percentage of Calls	52.94	47.06	100	
MLE (p) <sup>2</sup>	<0.01	<0.01		

<sup>1</sup> Refer to species key in Table C-1.

<sup>2</sup> MLE (p) values <0.05 suggests presence.

**Table C-3 Species Identification from the Detector Night August 6-7, 2018 using Detector # D004 at Site 2**

	Species Identification <sup>1</sup>				# Calls per Frequency		Total # Calls
	EPFU	LANO	LABO*	LACI	LOW	MID	
Number of Calls	7	28	1	22	57	1	58
Percentage of Calls	12.07	48.28	1.72	37.93	98.28	1.72	
MLE (p) <sup>2</sup>	0.033798	<0.01	0.002732	<0.01			

<sup>1</sup> Refer to species key in Table C-1.

<sup>2</sup> MLE (p) values <0.05 suggests presence.

\* This call was qualitatively reviewed.



**Table C-4 Species Identification from the Detector Night August 7-8, 2018 using Detector # D004 at Site 2**

	Species Identification <sup>1</sup>		Frequencies	Total # Calls
	LANO	LACI	LOW	
Number of Calls	6	3	9	9
Percentage of Calls	66.67	33.33	100	
MLE (p) <sup>2</sup>	<0.01	0.000051		

- 1 Refer to species key in Table C-1.
- 2 MLE (p) values <0.05 suggests presence.

**Table C-5 Species Identification from the Detector Night August 6-7, 2018 using Detector # D005 at Site 3**

	Species Identification <sup>1</sup>		Frequencies	Total # Calls
	LABO*	MID		
Number of Calls	1	1		1
Percentage of Calls	100	100		
MLE (p) <sup>2</sup>	0.002707			

- 1 Refer to species key in Table C-1.
  - 2 MLE (p) values <0.05 suggests presence.
- \* This call was qualitatively reviewed.

**Table C-6 Species Identification from the Detector Night August 6-7, 2018 using Detector # D006 at Site 4**

	Species Identification <sup>1</sup>		Frequencies	Total # Calls
	LANO	LACI	LOW	
Number of Calls	5	1	6	6
Percentage of Calls	83.33	16.67	100	
MLE (p) <sup>2</sup>	<0.01	0.047233		

- 1 Refer to species key in Table C-1.
- 2 MLE (p) values <0.05 suggests presence.

Ms. Susi von Oettingen  
Ref: 72900.00  
October 19, 2018  
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## Appendix D: Field Data Form

# Bat Acoustic Survey Data Form

If found, please return to: cglinka@vhb.com

<b>Project:</b>	Newport Pell Bridge Interchange	<b>County:</b>	Newport	<b>Site#:</b>	1	<b>Night#:</b>	1/2	<b>Site Name:</b>	Site 1	<b>Date:</b>	8/6/18		
Latitude: 41.499468			Longitude: -71.321066			Datum: NAD 83		Elevation: 14 ft.		ID By: C. Glinka			
Observers: C. Glinka & E. Deluski							Start Time: 13:23			End Time: 8/8/18 @ 8:21			
<b>Conditions:</b>	Time: Night 1 Avg.	Temp: 75.74°F	Wind: 2.60	Clouds: N/A	Time: Night 2 Avg.	Temp: 74.70°F	Wind: 3.51	Clouds: N/A	Time:	Temp:	Wind:	Clouds:	
Moon Effect: WAN-CRES		Start: N/A		Stop: N/A		<b>Land Use:</b> Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 1-11 / 1-14 / 5-54							
<b>NETS/TRAPS:</b>	A: NA		B: NA		C: NA		D: NA		E: NA		F: NA		
Pool: W x L													
Swoop: W x L													
Photo ?													
<b>BD#</b>	<b>Latitude / Longitude</b>			<b>Mic.</b>	<b>H (m)</b>	<b>Az.</b>	<b>Clutter</b>	<b>Gain</b>	<b>Trig</b>	<b>Inter</b>	<b>Start Time</b>	<b>Stop Time</b>	<b>Photo?</b>
1	41.499468 / -71.321066			Ext.	3	W	Edge	70	160	0	19:25	06:17	Yes
2	/												
3	/												
4	/												
<b>Site Description:</b> In residential neighborhood adjacent to Pell Bridge off-ramp on west side of Sycamore Street.					<p>Pell bridge off-ramp →</p> <p>faded strip</p> <p>• D003</p> <p>← Sycamore St.</p> <p>house</p> <p>house</p> <p>↑ N</p> <p>Washing ton St</p>								
Vegetation: Norway Maple, Oriental Bittersweet, Morrow's Honeysuckle, Common Cinquefoil													
<b>Remarks:</b> Sensitivity = Very High      Mic Test = Yes													
CF1: 29.81GB → CF1:27.60GB      Battery: 5.5V													
CF2: 7.447GB → CF2: 7.447GB      Battery: 5.0V					Site sketch (label to match Nets/Traps and BD# above)								

Detector Serial #: D003



# Bat Acoustic Survey Data Form

If found, please return to: cglinka@vhb.com

<b>Project:</b>	Newport Pell Bridge Interchange	<b>County:</b>	Newport	<b>Site#:</b>	2	<b>Night#:</b>	1/2	<b>Site Name:</b>	Site 2	<b>Date:</b>	8/6/18	
Latitude: 41.50166			Longitude: -71.317759			Datum: NAD 83		Elevation: 12 ft.		ID By: C. Glinka		
Observers: C. Glinka & E. Deluski							Start Time: 13:55			End Time: 8/8/18 @8:11		
<b>Conditions:</b>	Time: Night 1 Avg.	Temp: 75.74°F	Wind: 2.60	Clouds: N/A	Time: Night 2 Avg.	Temp: 74.70°F	Wind: 3.51	Clouds: N/A	Time:	Temp:	Wind:	Clouds:
Moon Effect: WAN-CRES	Start: N/A		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe):									
	Stop: N/A		1-14									
<b>NETS/TRAPS:</b>	A: NA		B: NA		C: NA		D: NA		E: NA		F: NA	
Pool: W x L												
Swoop: W x L												
Photo ?												
BD#	Latitude / Longitude		Mic.	H (m)	Az.	Clutter	Gain	Trig	Inter	Start Time	Stop Time	Photo?
1	41.50166 / -71.317759		Ext.	3	SW	Edge	70	160	0	19:25	06:17	Yes
2	/											
3	/											
4	/											
<b>Site Description:</b> Between Route 114 and RIDOT service road. Only shrubbery and sapling vegetation.			<p>Bl. Asp 90ft out-lamp to Pell Bridge</p> <p>abandoned access road</p> <p>20ft ↓</p> <p>• D004 ←</p> <p>shrub cover ↑ 25ft</p> <p>RT-238 ←</p> <p>Site sketch (label to match Nets/Traps and BD# above)</p>									
Vegetation: Autumn Olive, Willow, Oriental Bittersweet, Rosa Multiflora, Common Reed												
<b>Remarks:</b> Sensitivity = Very High      Mic Test = Yes												
CF1: 29.81GB → CF1: 28.12GB      Battery = 6.1V												
CF2: 7.447GB → CF2: 7.447GB      Battery = 6.0V												

Detector Serial #: D004

# Bat Acoustic Survey Data Form

If found, please return to: cglinka@vhb.com

<b>Project:</b>	Newport Pell Bridge Interchange	<b>County:</b>	Newport	<b>Site#:</b>	3	<b>Night#:</b>	1/2	<b>Site Name:</b>	Site 3	<b>Date:</b>	8/6/18	
Latitude: 41.50852			Longitude: -71.311709			Datum: NAD 83		Elevation: 47 ft.		ID By: C. Glinka		
Observers: C. Glinka & E. Deluski							Start Time: 14:42			End Time: 8/8/18 @8:43		
<b>Conditions:</b>	Time: Night 1 Avg.	Temp: 75.74°F	Wind: 2.60	Clouds: N/A	Time: Night 2 Avg.	Temp: 74.70°F	Wind: 3.51	Clouds: N/A	Time:	Temp:	Wind:	Clouds:
Moon Effect: WAN-CRES		Start: N/A		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 1-12 / 1-14 / 4-43								
<b>NETS/TRAPS:</b>	A: NA	B: NA		C: NA			D: NA		E: NA		F: NA	
Pool: W x L												
Swoop: W x L												
Photo ?												
BD#	Latitude / Longitude		Mic.	H (m)	Az.	Clutter	Gain	Trig	Inter	Start Time	Stop Time	Photo?
1	41.50852 / -71.311709		Ext.	3	N	Edge	70	160	0	19:25	06:17	Yes
2	/											
3	/											
4	/											
<b>Site Description:</b> Set on Aquidneck Land Trust, adjacent to walking path that connects to Miantonomi Park.				<p>tree cover</p> <p>walking path to Miantonomi Park</p> <p>Detector D005 10ft tree cover</p> <p>stone wall 10ft</p> <p>← Great Avenue →</p> <p>Site sketch (label to match Nets/Traps and BD# above)</p>								
Vegetation: Norway Maple, Japanese Knotweed, Morrow's Honeysuckle, Common Blackberry												
<b>Remarks:</b> Sensitivity = Very High		Mic Test = Yes										
CF1: 29.79GB → CF1: 26.10GB		Battery: 5.9V										
CF2: 7.447GB → CF2: 7.447GB		Battery: 5.9V										

Detector Serial #: D005 – Change time (15min slower)

# Bat Acoustic Survey Data Form

If found, please return to: cglinka@vhb.com

<b>Project:</b>	Newport Pell Bridge Interchange	<b>County:</b>	Newport	<b>Site#:</b>	4	<b>Night#:</b>	1/2	<b>Site Name:</b>	Site 4	<b>Date:</b>	8/6/18	
Latitude: 41.51875			Longitude: -71.312780			Datum: NAD 83		Elevation: 20 ft.		ID By: C. Glinka		
Observers: C. Glinka & E. Deluski							Start Time: 15:25			End Time: 8/8/18 @ 9:10		
<b>Conditions:</b>	Time: Night 1 Avg.	Temp: 75.74°F	Wind: 2.60	Clouds: N/A	Time: Night 2 Avg.	Temp: 74.70°F	Wind: 3.51	Clouds: N/A	Time:	Temp:	Wind:	Clouds:
Moon Effect: WAN-CRES		Start: N/A		Land Use: Urban / Agriculture / Forest / Water / Wetland / Barren (describe): 1-11 / 1-14 / 6-61								
<b>NETS/TRAPS:</b>	A: NA		B: NA		C: NA		D: NA		E: NA		F: NA	
Pool: W x L												
Swoop: W x L												
Photo ?												
BD#	Latitude / Longitude		Mic.	H (m)	Az.	Clutter	Gain	Trig	Inter	Start Time	Stop Time	Photo?
1	41.51875 / -71.312780		Ext.	3	NE	Edge	70	160	0	19:25	06:17	Yes
2	/											
3	/											
4	/											
<b>Site Description:</b> Road shoulder on J.T. Connell highway near CCRI/wetland flags.				<p>Hand-drawn site sketch showing J.T. Connell / Cobblestone Highway, a field, and detector location D006. The sketch includes a north arrow and labels for 'Field' and 'Site sketch (label to match Nets/Traps and BD# above)'.</p>								
Vegetation: Scarlet Oak, Rose Multiflora, Red Maple, Poison Ivy, Japanese Knotweed, Morrow's Honeysuckle												
<b>Remarks:</b> Sensitivity = Medium      Mic Test = Yes												
CF1: 29.79GB → CF1: 28.68GB		Battery(int.): 5.5V										
CF2: 7.447GB → CF2: 7.447GB		Battery(int.): 5.1V										

Detector Serial #: D006

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Ref: 72900.00  
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## Appendix E: Resumes



## Chelsea Glinka, ENV SP

Environmental Scientist



Chelsea Glinka is an Environmental Scientist in VHB's Providence, Rhode Island office. Her experience includes environmental permitting assessments and applications, natural resource documentation, wetland delineation, and flora and fauna surveys

*8 years of professional experience*

### Education

MS, Natural Resource Science  
with a concentration in  
Aquatic Toxicology,  
University of Connecticut,  
2013

BS, Environmental Science  
and Management, University  
of Rhode Island, 2010

### Registrations/Certifications

Envision™ Sustainability  
Professional, 2017

### Acoustic Bat Surveys and Habitat Assessments, Massachusetts

Chelsea has conducted northern long-eared bat acoustic surveys for the Massachusetts Department of Transportation (MassDOT) and the Norwood Municipal Light Department. Surveys included multiple locations and multiple detector nights. Her project responsibilities included technical guidance on field survey plans and equipment operation, completion of automated and qualitative acoustic data analysis, report writing and review, and coordination with the U.S. Fish and Wildlife Service.

### Tobacco Valley Solar Natural Resource Documentation, Connecticut

Chelsea was part of the team that prepared documentation for the TVS project that analyzed natural resources within the proposed 300-acre solar development area. This natural resource assessment included breeding bird surveys that targeted State-listed grassland and shrubland species, vernal pool surveys, rare flora and fauna surveys, and thorough documentation of the different vegetative communities and Key Habitat types present within the project area. Bird survey techniques employed passive acoustic and visual observations in line-transect surveys which followed pre-determined survey routes to maximize the opportunities to observe State-listed species. Call-back surveys were conducted following the passive acoustic surveys to further target the State-listed species. Chelsea also helped to develop conservation measures to protect sensitive resources within the project area that were approved by the Connecticut Natural Diversity Database Program. Chelsea has incorporated these conservation measures into a Resource Protection Plan that will be provided to the client and subcontractors to ensure compliance with conservation and resource protection measures that are required by permit conditions.

### Groton – New London Airport, Wetland Mitigation Assessment, New London, CT

Under an on-call environmental services contract with the Connecticut Airport Authority, Chelsea was part of a team that conducted field surveys for two state-listed rare plants present on the airfield and reported on the populations trends by reviewing previous reports. She also completed an annual wetland mitigation monitoring report required by the U.S. Army Corps of Engineers (USACE) and the Connecticut Department of Energy (CTDEEP) for a tidal wetland creation and enhancement project along the Poquonnock River on airport property. Additionally, Chelsea completed an invasive species field investigation and management report for the CAA.

**Narragansett Indian Tribe Natural Resource Resiliency Assessment and Action Plan, Charlestown, RI**

Chelsea was part of a team that performed a natural resource resiliency assessment of the Narragansett Indian Tribe's (NIT) coastal forest to determine the effects of wind damage from previous storms such as Superstorm Sandy. She collected field data to illustrate the baseline conditions of the forest and conducted an extensive literature review of similar studies to understand the forest's long-term vulnerability to significant storm events. The forest provides fish and wildlife habitat and is also an important cultural resource to the NIT. Chelsea helped to identify options for the protection and recovery of the NIT's natural resources and helped to make recommendations to improve the resiliency of the forest against future storms and climate change

**National Grid, Aquidneck Island Reliability Project, Middletown and Newport, RI**

Chelsea was part of a team responsible for the complex permitting needs of the Aquidneck Island Reliability Project (AIRP). This project has required the careful documentation of the environmental resources within the project area, which included an inventory of the environmental, social, and economic assets of the project area. Chelsea also described the anticipated effects from the project on habitat structure, water resources, and wildlife, and the measures that will be taken to minimize impact to the surrounding environment while ensuring successful completion of the project.

**National Grid, Z1Y2 Transmission Line Refurbishment, Somerset & Fall River, MA**

Chelsea is working to secure the applicable local, state, and federal environmental permits for the completion of the Z1Y2 Transmission Line Project. The Z1Y2 lines pass through several freshwater wetland areas and they span the tidal Taunton River which presents unique permitting and project design challenges. Chelsea has assisted in documenting natural resources within the transmission right-of-way (ROW) and wetland delineation as well as developing the different environmental permit applications necessary for the project to be completed.

**Lawton Farm Recreation Area, Scituate, RI**

Chelsea worked with the Scituate Land Trust to performed breeding bird point count surveys at the Lawton Farm Recreation Area and documented the findings in annual reports in 2014 and 2015. The land trust was specifically interested in the use of the property by grassland species such as bobolink and meadowlark.

## Meghan S. Lout, CWB

Wildlife Biologist



Meghan is a Wildlife Biologist in VHB's Vermont office and her expertise includes the ecology and research of threatened and endangered bat species. Her professional experience includes the design and implementation of field studies related to environmental compliance under Sections 7 and 10 of the Endangered Species Act and The National Environmental Policy Act. Meghan is also a federally-permitted bat biologist.

*15 years of professional experience*

### **Education**

MS, Ecology, Evolution and Population Biology, Purdue University, 2009

BS, Wildlife and Fisheries Conservation, University of Massachusetts, 2003

### **Certifications**

Certified Wildlife Biologist

### **Memberships**

The Wildlife Society

Bat Conservation International

Northeast Bat Working Group

### **Bat Capture and Acoustic Analysis Training**

Combined Field Techniques-Bat Survey Solutions, 2017

Bat Acoustic Training-Bat Surveys Solutions, 2016

### **The Vermont Bat Center**

board member, bat caretaker and reintroduction assistant

### **Bat Acoustic Monitoring Surveys**

#### **The Vermont Agency of Transportation – Multiple Locations [Montpelier, Saint Johnsbury, West Haven], Vermont, 2016, 2017, 2018**

Meghan was technical lead for active and passive presence/probable absence acoustic monitoring and exit surveys for the northern long-eared bat, Indiana bat and other state-threatened and endangered bats at bridge reconstruction projects for the Vermont Agency of Transportation. Meghan conducted field surveys, acoustic analyses and qualitative review, and wrote the final report in accordance with the Vermont Fish and Wildlife Department's and the U.S. Fish and Wildlife Service's requirements.

#### **Massachusetts Department of Transportation – Multiple Locations, Massachusetts, MA, 2017**

Meghan was technical lead for conducting seasonal presence/probable absence acoustic monitoring surveys for the Indiana bat (northwestern MA), northern long-eared bat and tri-colored bat at various projects throughout the state. She conducted acoustic analyses, qualitative review and reporting.

#### **Babson College – Bat Acoustic Monitoring Surveys, Wellesley, MA, 2017**

Meghan was technical lead for conducting seasonal presence/probable absence and long-term acoustic monitoring surveys for the northern long-eared bat at various locations on and off-campus, including a known hibernaculum entrance. She conducted acoustic analyses, qualitative review, and reporting.

#### **Stiles Brook Wind Energy Facility, Bat Acoustic Surveys and Habitat Assessment – Windham County, Vermont, April-October 2015**

Meghan was project manager and technical lead for acoustic monitoring surveys for federally and state-listed species. Surveys were conducted in accordance with the U.S. Fish and Wildlife Service's and the Vermont Fish and Wildlife Department's requirements. Her project responsibilities included technical guidance on field surveys, training field technicians in equipment operation/maintenance, data management and analysis.

#### **Groton Wind Plant, Bat Acoustic Surveys – New Hampshire, 2013-2015**

Meghan was the technical lead for bat activity surveys three consecutive years. Her responsibilities included project oversight and training field technicians in equipment operation and data management. She assisted with acoustic data analyses, report writing and review.

**Vermont Electric Company, Bat Acoustic Surveys – Vermont 2012**

Meghan was responsible for presence/probable absence acoustic monitoring surveys for the northern long-eared bat along a 200-mile transmission line corridor. Surveys were conducted in accordance with U.S. Fish and Wildlife Service's and the Vermont Fish and Wildlife Department requirements. Her responsibilities included field coordination, detector deployment, equipment maintenance, data management, analysis and reporting.

**Confidential Wind Energy Facility, Bat Acoustic Surveys – Maine, 2012**

Meghan was project manager for bat activity surveys at a proposed wind energy facility. Her responsibilities included technical guidance siting detector locations throughout the project area, training field technicians in the conduct of surveys, equipment operation, data management, and data analyses.

**Confidential Wind Energy Facility, Bat Acoustic Surveys – Pennsylvania, 2011**

Meghan was the technical lead for bat acoustic monitoring surveys. Her responsibilities included technical guidance, deployment and operation of bat detectors, data collection and completion of data analyses.

**Capture, Transmittering and Tracking Bats**

**Vermont Agency of Transportation, Vermont, 2017**

Meghan was the technical lead for mist-netting *Myotis* bats at a bridge replacement project, which included numerous capture sites throughout the summer. Her responsibilities included mist-net siting and deployment, processing bats, outfitting northern long-eared bats with transmitters, tracking individuals to roost and conducting exit and mist-netting surveys at roost locations. She was also the lead biologist in the Section 7 Consultation associated with this project.

**Vermont Fish and Wildlife Department and New York State Department of Environmental Conservation, Vermont, 2017**

Meghan volunteered in assisting with tracking of Indiana bats as they emerged from Barton Hill Mine during the spring and migrated to Vermont.

**National Parks Service, Kentucky, 2017**

Meghan attended a field course that included multiple acoustic monitoring techniques and the capture of cave-hibernating bats, including: Indiana bat, gray bat, Rafinesque's big-eared bat, tri-colored bat, northern long-eared bat and eastern small-footed bat near hibernacula entrances at Mammoth Cave National Park.

**Mid-Atlantic Region and New York, 2011-2016**

Meghan coordinated and assisted with mist-netting surveys and transmittering and tracking *Myotis* bats at proposed and operational wind energy facilities.

**Stantec Consulting, Ohio, 2008**

Meghan conducted mist-net surveys for *Myotis* bats using mist-nets and harp traps at mine entrances in the fall. She handled and processed bats and completed reporting requirements.



**University of Kentucky, Idaho, 2004**

Meghan mist-netted and transmittered northern long-legged myotis. She tracked tagged bats to day roost locations and conducted night-time telemetry on transmittered individuals.

**Bat Fatality Monitoring Surveys**

**Multiple Locations, [West Virginia, Maryland, New Hampshire, New York], 2011-2015**

Meghan was project manager and field coordinator for more than 20 post-construction fatality monitoring studies at wind energy facilities from 2011 through 2015. Meghan confirmed the identification of hundreds of injured and dead bats in various states of decay, including *Myotis*, *Perimyotis* and tree-roosting, migratory bats.

**Bat Habitat Assessments**

**Bridge Replacement and Tree Clearing Projects – Massachusetts and Vermont, 2016, 2017**

Meghan conducted habitat assessments for the Indiana bat and northern long-eared bat at bridge and road expansion and development projects in Vermont and evaluated habitats in Massachusetts. Her project responsibilities included the identification of potential roost trees, photo documentation and reporting to the U.S. Fish and Wildlife Service and the Vermont Fish and Wildlife Department.

**Confidential Wind Energy Facilities – Multiple Locations [West Virginia, Maryland and Pennsylvania], 2011-2015**

Meghan conducted habitat assessments for the Indiana bat and Virginia's big ear bat at an operational wind energy facility in West Virginia and Maryland, and the eastern small-footed bat in Pennsylvania. Her project responsibilities included the identification of potential roost locations, photo documentation and reporting to the state agencies and the U.S. Fish and Wildlife Service.

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## Appendix F: Event Log

Detector 51404 (D003)\_20180806-20180808 Event Log

MODEL NO: SDCFXS-032G  
 FW REV: HDX10.05  
 SERIAL: CZA401251514541  
 LABEL: D500X

**2018-08-06 10:08:36, CF1: \$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51404 --- TIMER OFF, BATTERY: 5.5V, FILE: -, TOTAL FREE: 37.26G**

2018-08-06 10:11:00, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.4V, FILE: -, TOTAL FREE: 37.26G  
 2018-08-06 14:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G  
 2018-08-06 14:16:13, CF1: \$\$KEYBOARD WAKEUP --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G  
 2018-08-06 15:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G  
 2018-08-06 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G  
 2018-08-06 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G  
 2018-08-06 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G  
**2018-08-06 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G**  
 2018-08-06 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.26G  
 2018-08-06 20:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.2V, FILE: M00015.WAV, TOTAL FREE: 37.19G  
 2018-08-06 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00033.WAV, TOTAL FREE: 37.10G  
 2018-08-06 22:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00052.WAV, TOTAL FREE: 37.01G  
 2018-08-06 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00064.WAV, TOTAL FREE: 36.96G  
 2018-08-07 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00084.WAV, TOTAL FREE: 36.86G  
 2018-08-07 01:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00104.WAV, TOTAL FREE: 36.77G  
 2018-08-07 02:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00117.WAV, TOTAL FREE: 36.71G  
 2018-08-07 03:00:05, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00133.WAV, TOTAL FREE: 36.63G  
 2018-08-07 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00138.WAV, TOTAL FREE: 36.61G  
**2018-08-07 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00143.WAV, TOTAL FREE: 36.59G**  
 2018-08-07 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.9V, FILE: M00162.WAV, TOTAL FREE: 36.50G  
 2018-08-07 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 5.0V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.0V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.0V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 09:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.1V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
**2018-08-07 10:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.1V, FILE: M00168.WAV, TOTAL FREE: 36.47G**  
 2018-08-07 11:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.2V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 12:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.3V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 13:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.3V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 14:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.3V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 15:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.3V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 5.4V, FILE: M00168.WAV, TOTAL FREE: 36.47G  
 2018-08-07 20:00:05, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00229.WAV, TOTAL FREE: 36.18G  
**2018-08-07 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.9V, FILE: M00275.WAV, TOTAL FREE: 35.97G**  
 2018-08-07 22:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.9V, FILE: M00312.WAV, TOTAL FREE: 35.79G  
 2018-08-07 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00378.WAV, TOTAL FREE: 35.48G  
 2018-08-08 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00420.WAV, TOTAL FREE: 35.28G  
 2018-08-08 01:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00426.WAV, TOTAL FREE: 35.26G  
 2018-08-08 02:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00432.WAV, TOTAL FREE: 35.23G  
 2018-08-08 03:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00435.WAV, TOTAL FREE: 35.21G  
 2018-08-08 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00438.WAV, TOTAL FREE: 35.20G  
 2018-08-08 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00441.WAV, TOTAL FREE: 35.19G  
 2018-08-08 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00460.WAV, TOTAL FREE: 35.10G  
 2018-08-08 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 4.8V, FILE: M00470.WAV, TOTAL FREE: 35.05G  
 2018-08-08 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 4.8V, FILE: M00470.WAV, TOTAL FREE: 35.05G  
**2018-08-08 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 4.9V, FILE: M00470.WAV, TOTAL FREE: 35.05G**  
 2018-08-08 08:19:29, CF1: \$\$KEYBOARD WAKEUP --- TIMER OFF, BATTERY: 5.1V, FILE: M00470.WAV, TOTAL FREE: 35.05G  
 2018-08-08 08:21:37, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.0V, FILE: M00470.WAV, TOTAL FREE: 35.05G



Detector 51405 (D004)\_20180806-20180808 Event Log

MODEL NO: SDCFXS-032G  
 FW REV: HDX10.05  
 SERIAL: A ZA603251110354  
 LABEL: D004\_CF1

2018-08-06 10:16:58, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51405 --- TIMER OFF, BATTERY: 5.5V, FILE: -, TOTAL FREE: 37.26G

2018-08-06 10:18:11, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.4V, FILE: -, TOTAL FREE: 37.26G

2018-08-06 13:56:51, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51405 --- TIMER OFF, BATTERY: 5.5V, FILE: -, TOTAL FREE: 37.26G

2018-08-06 13:57:29, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.5V, FILE: -, TOTAL FREE: 37.26G

2018-08-06 13:58:04, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51405 --- TIMER OFF, BATTERY: 6.1V, FILE: -, TOTAL FREE: 37.26G

2018-08-06 14:00:50, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 15:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 20:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 6.1V, FILE: M00001.WAV, TOTAL FREE: 37.26G

2018-08-06 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 6.0V, FILE: M00020.WAV, TOTAL FREE: 37.16G

2018-08-06 22:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 6.0V, FILE: M00032.WAV, TOTAL FREE: 37.11G

2018-08-06 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00154.WAV, TOTAL FREE: 36.53G

2018-08-07 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00173.WAV, TOTAL FREE: 36.45G

2018-08-07 01:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00186.WAV, TOTAL FREE: 36.38G

2018-08-07 02:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00248.WAV, TOTAL FREE: 36.10G

2018-08-07 03:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 6.0V, FILE: M00252.WAV, TOTAL FREE: 36.07G

2018-08-07 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00263.WAV, TOTAL FREE: 36.02G

2018-08-07 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00276.WAV, TOTAL FREE: 35.96G

2018-08-07 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00279.WAV, TOTAL FREE: 35.95G

2018-08-07 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 5.9V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 09:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 10:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 11:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 12:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 13:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 14:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 15:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 6.1V, FILE: M00282.WAV, TOTAL FREE: 35.93G

2018-08-07 20:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00290.WAV, TOTAL FREE: 35.90G

2018-08-07 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00300.WAV, TOTAL FREE: 35.85G

2018-08-07 22:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00319.WAV, TOTAL FREE: 35.76G

2018-08-07 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00323.WAV, TOTAL FREE: 35.74G

2018-08-08 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00325.WAV, TOTAL FREE: 35.73G

2018-08-08 01:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 6.0V, FILE: M00327.WAV, TOTAL FREE: 35.72G

2018-08-08 02:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00330.WAV, TOTAL FREE: 35.71G

2018-08-08 03:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00333.WAV, TOTAL FREE: 35.69G

2018-08-08 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00335.WAV, TOTAL FREE: 35.68G

2018-08-08 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00350.WAV, TOTAL FREE: 35.61G

2018-08-08 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00362.WAV, TOTAL FREE: 35.56G

2018-08-08 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 5.9V, FILE: M00362.WAV, TOTAL FREE: 35.56G

2018-08-08 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00362.WAV, TOTAL FREE: 35.56G

2018-08-08 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00362.WAV, TOTAL FREE: 35.56G

2018-08-08 08:09:31, CF1: \$\$KEYBOARD WAKEUP --- TIMER OFF, BATTERY: 6.0V, FILE: M00362.WAV, TOTAL FREE: 35.56G

2018-08-08 08:11:44, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 6.0V, FILE: M00362.WAV, TOTAL FREE: 35.56G

Detector 51488 (D005)\_20180806-20180808 Event Log

MODEL NO: SanDisk SDCFHSNIC-032G  
 FW REV: HDX 7.07  
 SERIAL: A ZE505051618225  
 LABEL: D005\_CF\_1

2018-08-06 10:14:36, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51488 --- TIMER OFF, BATTERY: 5.3V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 10:14:58, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.3V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 14:18:53, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51488 --- TIMER OFF, BATTERY: 6.0V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 15:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 6.0V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 20:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00019.WAV, TOTAL FREE: 37.15G  
 2018-08-06 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00040.WAV, TOTAL FREE: 37.05G  
 2018-08-06 22:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.9V, FILE: M00059.WAV, TOTAL FREE: 36.96G  
 2018-08-06 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00072.WAV, TOTAL FREE: 36.90G  
 2018-08-07 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00086.WAV, TOTAL FREE: 36.84G  
 2018-08-07 01:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00120.WAV, TOTAL FREE: 36.68G  
 2018-08-07 02:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00131.WAV, TOTAL FREE: 36.63G  
 2018-08-07 03:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00253.WAV, TOTAL FREE: 36.05G  
 2018-08-07 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00348.WAV, TOTAL FREE: 35.61G  
 2018-08-07 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00385.WAV, TOTAL FREE: 35.43G  
 2018-08-07 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 5.8V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 09:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 10:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 11:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 12:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.9V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 13:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 14:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 15:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 6.0V, FILE: M00389.WAV, TOTAL FREE: 35.41G  
 2018-08-07 20:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00430.WAV, TOTAL FREE: 35.22G  
 2018-08-07 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00465.WAV, TOTAL FREE: 35.06G  
 2018-08-07 22:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00501.WAV, TOTAL FREE: 34.89G  
 2018-08-07 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00519.WAV, TOTAL FREE: 34.80G  
 2018-08-08 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00530.WAV, TOTAL FREE: 34.75G  
 2018-08-08 01:00:05, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00581.WAV, TOTAL FREE: 34.51G  
 2018-08-08 02:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00685.WAV, TOTAL FREE: 34.02G  
 2018-08-08 03:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00713.WAV, TOTAL FREE: 33.89G  
 2018-08-08 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00742.WAV, TOTAL FREE: 33.75G  
 2018-08-08 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00754.WAV, TOTAL FREE: 33.70G  
 2018-08-08 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.8V, FILE: M00778.WAV, TOTAL FREE: 33.58G  
 2018-08-08 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 5.8V, FILE: M00787.WAV, TOTAL FREE: 33.54G  
 2018-08-08 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.8V, FILE: M00787.WAV, TOTAL FREE: 33.54G  
 2018-08-08 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.8V, FILE: M00787.WAV, TOTAL FREE: 33.54G  
 2018-08-08 08:29:32, CF1: \$\$KEYBOARD WAKEUP --- TIMER OFF, BATTERY: 5.9V, FILE: M00787.WAV, TOTAL FREE: 33.54G  
 2018-08-08 08:30:50, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.9V, FILE: M00787.WAV, TOTAL FREE: 33.54G

Detector 51501 (D006)\_20180806-20180808 Event Log

MODEL NO: SanDisk SDCFHSNJ-032G  
 FW REV: HDX 7.07  
 SERIAL: A ZK506051607252  
 LABEL: D006\_CF\_1

2018-08-06 15:08:57, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51501 --- TIMER OFF, BATTERY: 5.2V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 15:09:03, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.1V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 15:09:49, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51501 --- TIMER OFF, BATTERY: 5.5V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 15:10:04, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.4V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 15:16:03, CF1: \$\$\$SYSTEM START, FW VERSION: D500X V2.2.6 140516, 17:19:14, S/N: 51501 --- TIMER OFF, BATTERY: 5.5V, FILE: -, TOTAL FREE: 37.24G  
 2018-08-06 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 5.5V, FILE: M00001.WAV, TOTAL FREE: 37.24G  
 2018-08-06 20:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.2V, FILE: M00015.WAV, TOTAL FREE: 37.17G  
 2018-08-06 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.2V, FILE: M00029.WAV, TOTAL FREE: 37.10G  
 2018-08-06 22:00:40, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00053.WAV, TOTAL FREE: 36.99G  
 2018-08-06 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00074.WAV, TOTAL FREE: 36.89G  
 2018-08-07 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00079.WAV, TOTAL FREE: 36.87G  
 2018-08-07 01:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00084.WAV, TOTAL FREE: 36.85G  
 2018-08-07 02:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00088.WAV, TOTAL FREE: 36.83G  
 2018-08-07 03:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00092.WAV, TOTAL FREE: 36.81G  
 2018-08-07 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.1V, FILE: M00093.WAV, TOTAL FREE: 36.80G  
 2018-08-07 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00100.WAV, TOTAL FREE: 36.77G  
 2018-08-07 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00119.WAV, TOTAL FREE: 36.68G  
 2018-08-07 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 5.0V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.0V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.1V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 09:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.1V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 10:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.2V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 11:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.2V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 12:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.3V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 13:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.3V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 14:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.3V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 15:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 16:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 17:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 18:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 19:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 5.4V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 19:25:01, CF1: \$\$TIMER WAKEUP --- TIMER ON, BATTERY: 5.4V, FILE: M00133.WAV, TOTAL FREE: 36.62G  
 2018-08-07 20:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00149.WAV, TOTAL FREE: 36.54G  
 2018-08-07 21:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00163.WAV, TOTAL FREE: 36.48G  
 2018-08-07 22:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.9V, FILE: M00177.WAV, TOTAL FREE: 36.41G  
 2018-08-07 23:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00182.WAV, TOTAL FREE: 36.39G  
 2018-08-08 00:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00185.WAV, TOTAL FREE: 36.37G  
 2018-08-08 01:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00188.WAV, TOTAL FREE: 36.36G  
 2018-08-08 02:00:05, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.9V, FILE: M00191.WAV, TOTAL FREE: 36.34G  
 2018-08-08 03:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.9V, FILE: M00195.WAV, TOTAL FREE: 36.32G  
 2018-08-08 04:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 5.0V, FILE: M00196.WAV, TOTAL FREE: 36.32G  
 2018-08-08 05:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.9V, FILE: M00200.WAV, TOTAL FREE: 36.30G  
 2018-08-08 06:00:00, CF1: \$\$HOUR LOG --- TIMER ON, BATTERY: 4.8V, FILE: M00226.WAV, TOTAL FREE: 36.18G  
 2018-08-08 06:17:05, CF1: \$\$TIMER SLEEP --- TIMER OFF, BATTERY: 4.8V, FILE: M00238.WAV, TOTAL FREE: 36.12G  
 2018-08-08 07:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 4.9V, FILE: M00238.WAV, TOTAL FREE: 36.12G  
 2018-08-08 08:00:00, CF1: \$\$HOUR LOG --- TIMER OFF, BATTERY: 4.9V, FILE: M00238.WAV, TOTAL FREE: 36.12G  
 2018-08-08 08:56:14, CF1: \$\$KEYBOARD WAKEUP --- TIMER OFF, BATTERY: 5.2V, FILE: M00238.WAV, TOTAL FREE: 36.12G  
 2018-08-08 08:57:11, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.1V, FILE: M00238.WAV, TOTAL FREE: 36.12G  
 2018-08-08 09:03:20, CF1: \$\$KEYBOARD WAKEUP --- TIMER OFF, BATTERY: 5.1V, FILE: M00238.WAV, TOTAL FREE: 36.12G  
 2018-08-08 09:05:01, CF1: \$\$KEYBOARD SLEEP --- TIMER OFF, BATTERY: 5.1V, FILE: M00238.WAV, TOTAL FREE: 36.12G

Ref: 72900.00  
March 15, 2019

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## **Appendix G: USFWS Species Concurrence Letter**





# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5087  
<http://www.fws.gov/newengland>

March 18, 2019

Melanie Army  
Rhode Island Department of Transportation  
2 Capitol Hill, Room 350  
Providence, RI 02903

Re: Section 7 Consultation – Proposed Reconstruction of the Pell Bridge Approaches,  
Newport, RI

Dear Ms. Army:

This responds to your correspondence, dated January 2, 2019, and received in our office on January 28, 2019, requesting our concurrence with your determination that the proposed activity referenced above may affect, but is not likely to adversely affect, the federally endangered roseate tern (*Sterna dougallii dougallii*) or the federally threatened northern long-eared bat (*Myotis septentrionalis*). Your request and our response are provided in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531, *et seq.*) (ESA).

The proposed project (Project) aims to reconfigure the Pell Bridge ramps and, once removed, reconnect neighborhoods separated by these ramps with a new network of local streets. Other proposed improvements include enhancing intersection function and traffic circulation, adding a bicycle path, and bus and light rail travel alternatives. The Project will include the removal of the existing ramp system to Pell Bridge Newport, construction of a new connection from J.T. Connell Highway to Halsey Street and Admiral Kalbfus Road, the extension of Halsey Street to connect Admiral Kalbfus Road with J.T. Connell Highway, and reconstruction of the intersection of Admiral Kalbfus Road at Malbone Road/Girard Avenue. The project area falls within the range of the roseate tern and the northern long-eared bat.

Roseate terns nest only on offshore islands and they also forage offshore. The roseate tern is exclusively marine, usually breeding on small islands, but occasionally on sand dunes at the ends of barrier beaches. During the breeding season (April-July), they forage over shallow bays, tidal inlets and channels, and tide-rips and sandbars over which tidal currents run rapidly. During pre-migratory staging in August-September, roseate terns feed over coastal waters between Long Island, New York and Maine. During this time, they rest and roost on islands and outer beaches.

Suitable habitat for the roseate tern is not present in the project area. Therefore, the likelihood that the species would occur in the project area is discountable, and we concur with your determination that the Project may affect, but is not likely to adversely affect, the roseate tern.

The northern long-eared bat is a forest-dwelling species found throughout the State of Rhode Island. Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. They use various-sized caves or mines with constant temperatures, high humidity, and no air currents. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices.

Suitable summer habitat for the northern long-eared bat is present within the project area and the Project will involve vegetation removal. However, surveys conducted in August of 2018 following the U.S. Fish and Wildlife Service's (Service) Summer Survey Guidelines did not detect any northern long-eared bats. Because of this result, the likelihood that northern long-eared bats are present is discountable, and we concur with your determination that the Project may affect, but is not likely to adversely affect, the northern long-eared bat.

The Service compiled a list of voluntary conservation measures for actions that may affect the northern long-eared bat. For consideration by the Rhode Island Department of Transportation (RIDOT) during this and future projects, we enclosed these measures as an attachment to this letter.

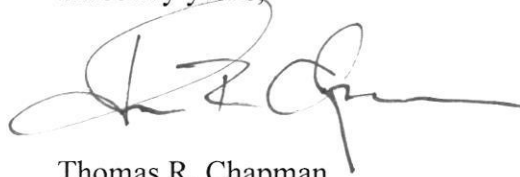
To obtain updated lists of federally listed, or proposed threatened or endangered, species and critical habitats, please visit the Service's Environmental Conservation Online System website for Information for Planning and Consultation: <http://ecos.fws.gov/ipac/> (accessed March 2019). By following the procedures outlined on the website, you should be able to generate a species list or a no species present determination for your Project. There are also links to listed species documents that may allow you to determine if habitat for a listed species is present in the project area. If no such habitat exists (as is the case for the roseate tern relative to this Project), no federally listed species are present in the project area and there is no need to contact us for consultation. However, if the project may affect a listed species, additional consultation with our office is advised.

Melanie Army  
March 18, 2019

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Further consultation with us under section 7 of the ESA is not required at this time. If the proposed action changes in any way such that it may affect a listed species in a manner not previously analyzed or if new information reveals the presence of additional listed species that may be affected by the Project, the RIDOT should contact us immediately and suspend activities that may affect those species until the appropriate level of consultation is completed with our office. Thank you for your coordination. Please contact Ms. Cindy Corsair of this office at 401-213-4416 if we can be of further assistance.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'T. R. Chapman', with a long horizontal flourish extending to the right.

Thomas R. Chapman  
Supervisor  
New England Field Office

Attachment

**Voluntary conservation measures for actions that may affect the northern long-eared bat. Taken from the Service's "Optional Framework to Streamline Section 7 Consultation for the Northern Long-Eared Bat"**

(<https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html>).

1. Perform northern long-eared bat surveys according to the most recent Range-wide Indiana Bat/ northern long-eared bat Summer Survey Guidelines. Benefits from agencies voluntarily performing northern long-eared bat surveys include:
  - a. Surveys will help federal agencies meet their responsibilities under section 7(a)(1) of the Act. The Service and partners will use the survey data to better understand habitat use and distribution of northern long-eared bats, track the status of the species, evaluate threats and impacts, and develop effective conservation and recovery actions. Active participation of federal agencies in survey efforts will lead to a more effective conservation strategy for the northern long-eared bat.
  - b. Should the Service reclassify the species as endangered in the future, an agency with a good understanding of how the species uses habitat based on surveys within its action areas could inform greater flexibility under section 7(a)(2) of the Act. Such information could facilitate an expedited consultation and incidental take statement that may, for example, exempt taking associated with tree removal during the active season, but outside of the pup season, in known occupied habitat.
2. Apply additional voluntary conservation measures, where appropriate, to reduce the impacts of activities on northern long-eared bats. Conservation measures include:
  - a. Conduct tree removal activities outside of the northern long-eared bat pup season (June 1 to July 31) and/or the active season (April 1 to October 31). This will minimize impacts to pups at roosts not yet identified.
  - b. Avoid clearing suitable spring staging and fall swarming habitat within a 5-mile radius of known or assumed northern long-eared bat hibernacula during the staging and swarming seasons (April 1 to May 15 and August 15 to November 14, respectively).
  - c. Manage forests to ensure a continual supply of snags and other suitable maternity roost trees.
  - d. Conduct prescribed burns outside of the pup season (June 1 to July 31) and/or the active season (April 1 to October 31). Avoid high-intensity burns (causing tree scorch higher than northern long-eared bat roosting heights) during the summer maternity season to minimize direct impacts to northern long-eared bat.
  - e. Perform any bridge repair, retrofit, maintenance, and/or rehabilitation work outside of the northern long-eared bat active season (April 1 to October 31) in areas where northern long-eared bats are known to roost on bridges or where such use is likely.
  - f. Do not use military smoke and obscurants within forested suitable northern long-eared bat habitat during the pup season (June 1 to July 31) and/or the active season (April 1 to October 31).
  - g. Minimize use of herbicides and pesticides. If necessary, spot treatment is preferred over aerial application.



- h. Evaluate the use of outdoor lighting during the active season and seek to minimize light pollution by angling lights downward or via other light minimization measures.
- i. Participate in actions to manage and reduce the impacts of white-nose syndrome on northern long-eared bat. Actions needed to investigate and manage white-nose syndrome are described in a national plan the Service developed in coordination with other state and federal agencies.

**Additional Voluntary Conservation Actions Recommended by the New England Field Office for the Northern Long-eared Bat**

1. Designate caves and mines that are occupied by bats as smoke-sensitive targets. Avoid smoke entering these caves and mines any time of the year when federally listed bats are present.
2. Within 0.25 miles of known, occupied NLEB hibernacula, design timber harvest to maintain, enhance, or restore swarming, staging, roosting, and foraging habitat. The desired habitat condition is that these areas will feature structurally complex, resilient forest communities with a continuous supply of snags, culls, cavities, and other quality roosts.
3. Plan herbicide and other pesticide application to avoid or minimize direct and indirect effects to known, occupied bat hibernacula and maternity roosts.
4. Survey old buildings, wells, cisterns, bridges, and other man-made structures for bats before the structures are modified or demolished. If roosting bats are found, modify or demolish these structures outside the active season (April 1 to October 31) and evaluate the need for alternative roosts.
5. Avoid cutting or destroying known, occupied maternity roost trees unless they are a safety hazard.
6. Where needed to provide drinking sources for bats, create small wetlands or water holes.