

# Statement of Work

## **Species and Habitat Surveys at Naval Air Station Oceana/Dam Neck Annex/Naval Auxiliary Landing Field Fentress (NASO/DNA/NALFF) and Naval Support Activity Hampton Roads – Northwest Annex (NSA HR – NWA) and Naval Subbase New London (SUBBASE NLON)**

### **A. Introduction and Project Area**

The purpose of this scope of work is to implement cost-effective and standardized surveys for various species and habitats within the project areas. Detailed task descriptions can be found below with the appropriate level of effort. The principal investigator will carry out plans, deploy necessary hardware, provide data analysis, and provide reports and recommendations for inclusion into installation's Integrated Natural Resource Management Plans, respectively and other decision documents. Projects identified in this SOW consist of sampling for flora and fauna (priority on State and Federally listed and at-risk species), habitat monitoring and management and wildlife management. Physical surveys will provide quality assurance checks for previously collected data and document new species occurrences and new habitats. Habitat management activities will allow the installations to respond quickly to pest, disease, invasive species, and environmental change threats. Projects related to wildlife management will inform and assist with human/wildlife conflict, protect sensitive habitats, and evaluate potential for management and recreational opportunities. All data collected will be consistent with the installations INRMP goals and objectives and will be used to inform annual data calls and INRMP updates. The details for each task are below in section C.

Project area covers Naval Air Station Oceana (NASO), Naval Auxiliary Landing Field Fentress (NALFF), NASO Dam Neck Annex (DNA), Naval Support Activity Hampton Roads, Northwest Annex (NWA), and Naval Sub-Base New London (NLON). See attached maps for reference.

**NASO** covers approximately 5,746 acres and is located in Virginia Beach, VA. This area includes contiguous and non-contiguous parcels commonly referred to as: NAS OCEANA VA (5,304 acres); Owls Creek Parcel (235 acres); Oceana/Booth-Moore, or Commissary Parcel (76 acres); Midway Manor Housing Parcel (88 acres); NEXCOM Headquarters or Beverly Parcel (10 acres); Clearzone RWY 32 or Concrete Pond and Wolfsnare Parcels (30 acres); and OCEANA SCH VA BEACH VA parcel (3 acres). All parcels are located within the City of Virginia Beach, VA. For this survey effort NASO is inclusive of all smaller parcels (contiguous and non-contiguous) assigned to NASO within southeastern Virginia. As of Feb 2017, no unexploded ordnance (UXO) sites have been designated on the installation.

**NALFF** is considered one contiguous parcel that covers approximately 2,578 acres and is located in Chesapeake, VA. As of Feb 2017, one UXO area has been designated on the installation covering approximately 57.5 acres. The site has undergone additional UXO work, which now allows the area to be accessed for non-intrusive/passive surveying upon surveyors taking UXO recognize-retreat-report (RRR) training.

**DNA** covers approximately 1,965 acres and is located in Virginia Beach, VA. This installation encompasses three parcels that are adjacent to one another and are commonly referred to as: Dam Neck, VA Camp Pendleton, and Red-wing Lake/West KD Range. As of Feb 2017, one unexploded ordnance

area (UXO) area has been designated on the installation covering approximately 21 acres. The site is undergoing a UXO clearance project, which may result in a change in UXO designation. Another potential UXO site covering approximately 43 acres has been identified on site and is undergoing additional testing to determine if an official UXO designation is warranted. Until further notice the potential UXO area is being treated as if it has been designated as UXO. Some UXO or potential UXO areas may be authorized for non-intrusive/passive surveying upon surveyors taking UXO recognize-retreat-report (RRR) training or if surveyors are already certified explosive ordnance response personnel or if surveyors are escorted by certified UXO personnel (Navy does not provide certified UXO personnel).

**NSA HR - NWA** is located 15 miles east of Great Dismal Swamp National Wildlife Refuge and 28 miles west of the Virginia Coastline. The state border runs through the Installation with the northern two thirds in Virginia and the southern third in North Carolina. The Installation is approximately 3600 acres, of which 2300 are forested, 750 agricultural lease and majority of the installation comprised of wetlands.

**SUBASE NLON** is composed of a main installation, AFNRA, and five navy housing areas. SUBASE NLON's main installation is located on the eastern shore of the Thames River in the Towns of Ledyard and Groton, CT, along State Route 12. SUBASE NLON neighbors a major submarine construction yard operated by General Dynamics' Electric Boat. The five navy housing areas surround the main installation to the east and south in Groton, CT (URS ONYX, 2017). AFNRA is located in Stonington, CT, along U.S. Route 1.

SUBASE NLON's 687-acre main installation is approximately six miles north of Long Island Sound and includes 1.5 miles of shorefront on the Thames River. There are more than 200 major buildings on the main installation and 10 piers supporting 19 fast-attack submarines along the Thames River (SUBASE NLON, n.d.).

## **B. Objective**

NAVFAC MIDLANT is proposing work be conducted with a university and/or non-governmental organization/partner to conduct a host of wildlife species and habitat of concern species surveys and monitoring efforts including but not limited to: monarch butterfly and mapping efforts on suitable habitat; dune delineation efforts; tiger beetle surveys and habitat assessments on suitable habitat; presence/absence inventory of Federal and State Threatened and Endangered (T&E) Species, Species at Risk (SAR) and Vegetation Communities of Concern; base-wide monitoring/roost/hibernacula tracking/identification surveys of bats, with a focus on the Northern long-eared bat (NLEB) and the Tri-colored bat (TRCB); and procure for and provide the Navy, equipment/supplies/material to support project implementation.

This SOW is being advertised on the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CHW CESU) to complete this work. This SOW provides the cooperator with the opportunity to build a relationship with the Navy to provide for the development of scientific information to be used in the stewardship, conservation, and management of the installation's natural resources programs and assist the Navy with Sikes Act and Endangered Species Act compliance requirements as well as INRMP goals and objectives. It provides for the limited interchange of services, personnel, equipment, facilities, and funds to obtain this goal. NAVFAC

Mid-Atlantic is responsible for executing this project on behalf of the installations for which this project will benefit.

Further, this project contributes to the objectives of the CESU network by providing usable knowledge to support informed decision making; creating and maintaining effective partnerships among the federal agencies, state agencies and universities to share resources and expertise; encouraging professional development of current and future federal scientists, resource managers, and environmental leaders; and managing federal resources effectively. In addition, this work is consistent with Chesapeake Watershed Cooperative Ecosystem Studies Unit (CHW CESU) mission of providing research, technical assistance, and education to federal land management, environmental, and research agencies within marine, coastal, and terrestrial ecosystems of the region and offers a strong complement of marine and coastal scientists.

In sum, the objective of this project is to support a host of wildlife species and habitats including threatened and endangered species studies and monitoring, listed and SAR species and habitats of concern.

## **C. Designated Government Officials**

### **Contracting Officer Representative (COR)**

The COR will be Grant Harter, Natural Resource Specialist, Naval Facilities Engineering Command Mid-Atlantic, Building Z-140, 9324 Virginia Ave., Norfolk, VA 23511, Voice: 757-341-2109; email: [grant.e.harter.civ@us.navy.mil](mailto:grant.e.harter.civ@us.navy.mil)

### **Natural Resource Manager (NRM)**

The activity point of contact varies by installation as follows:

*NASO/NALFF/DNA*

Ms. Mike Wright, NAVFAC MIDLANT Environmental NAS Oceana, 395 Hornet Drive, Bldg 820 Virginia Beach, VA 23460-2190, Desk (757) 462-5351, Mobile: (757-994-5930, email: [michael.f.wright43.civ@us.navy.mil](mailto:michael.f.wright43.civ@us.navy.mil)

*NSA HR - NWA*

Taylor Austin, 757-421-8240, [taylor.s.austin2.civ@us.navy.mil](mailto:taylor.s.austin2.civ@us.navy.mil)

*SUBASE NLON*

Lindsey Bidder, (860) 694-5649, [lindsey.a.bidder.civ@us.navy.mil](mailto:lindsey.a.bidder.civ@us.navy.mil)

### **CESU Administrative Office/Representative**

Christine T. Briggs, 757-341-0090, [christine.t.briggs2.civ@us.navy.mil](mailto:christine.t.briggs2.civ@us.navy.mil)  
NAVFAC Mid-Atlantic Contract Specialist

## GIS

The activity point of contact for all GIS project related items will be the GIS coordinator, Mr. K. Dean Wright: NAVFAC MIDLANT EV42; Bldg. N-26, Rm 3208, FL3., 9324 Virginia Ave., Norfolk, VA 23511; Voice: 757-341-0452; email: [Kelly.d.wright10.civ@us.navy.mil](mailto:Kelly.d.wright10.civ@us.navy.mil)

## D. Tasks

The Cooperator will conduct natural resources surveys as described in the tasks below for each Installation respectively.

## GENERAL REQUIREMENTS

1. The Cooperator is specifically prohibited from carrying out any activities not specified in these Tasks unless written approval is obtained from the COR and NRM.
2. All field notes, field data forms, GIS data, photographs, etc. produced as parts of this Scope of Work/Task are the property of NAVFAC Mid-Atlantic Environmental. These data will not be used, in whole or in part, in any professional, scientific or non-scientific report, paper, or note, published or unpublished or be part of any technical or non-technical presentation without the written pre-authorization and review by the COR and NRM.
3. Cooperator personnel shall not respond to any inquiries about this task order from the news media, non-governmental organizations, or other persons during the period of performance. All inquiries shall be directed to the installation Public Affairs Officer, via the COR or NRM.
4. The Cooperator shall visit the designated areas as necessary and within the limits stated below to accomplish the purpose of these tasks as detailed further in this Scope. It is the Cooperator's responsibility to obtain security and entrance clearances and camera passes for himself/herself and his/her personnel. The Cooperator shall comply with all site security rules, regulations, requirements, and day-to-day operational changes.
5. The Cooperator shall contact federal and state agencies such as the United States Fish and Wildlife Service (USFWS), Virginia Department of Wildlife Resources (VDWR), Virginia Natural Heritage Program (VNHP), Virginia Marine Resources Commission (VMRC), North Carolina Wildlife Resource Commission (NCWRC), NC Natural Heritage Program (NCNHP), Connecticut Department of Energy and Environmental Protection (CT DEEP) and National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries), through the COR and/or NRM, prior to initiating surveys in order to establish requirements for surveying. This coordination shall be reflected in the survey plans that will be submitted for approval prior to any field work commencing. Neither the Cooperator nor his/her field personnel shall independently notify the USFWS, NOAA Fisheries, VDWR, VNHP, VMRC, NCWRC, NCNHP and/or CT DEEP of any findings except with approval from the COR and NRM. The Cooperator shall obtain and provide copies to the COR and NRM of any appropriate permits prior to commencement of field work.
6. The Cooperator shall work closely with the NTR and IR in planning and carrying out field investigations. Prior to conducting work COR, NRM, Security, and Training Officers need to review and approve proposed methodologies and locations to ensure access and security issues

are addressed and there are no environmental or other concerns associated with the proposed methodology and site locations. The NRM, not the Cooperator, will coordinate directly with Security, and Training Officers. Results of these reviews may warrant a change in methodology or relocation of the sample sites.

7. The Cooperator shall provide a minimum of three (3) weeks' notice prior to working on the installations to the NRM to ensure all required installation passes and approvals are provided to Security, and the Pass and ID office prior to conducting on-site field work.
8. Dead, injured, sick, or otherwise protected wildlife will not be removed from the installation by the Cooperator except as allowed by Federal and/or State permits. All such wildlife shall be reported immediately to the IR and NTR. If wildlife is a State or Federal threatened or endangered species, then it should be left where found and the NRM or COR will contact the State, USFWS, Virginia Aquarium Stranding Team (VAST), or NOAA Fisheries as appropriate. All such instances shall be documented as a species observation using the feature class Species Location.
9. All field equipment, tools, machinery and clothing will be properly cleaned, sterilized and/or disinfected, when necessary, to prevent the spread of any undesirable species or diseases prior to entry onto the installation and in-between surveying sites.
10. All field equipment, tools, machinery (supplies and equipment) purchased under this cooperative agreement (task 8) will become the property of US Navy.

## **SERVICES REQUESTED**

### **Task 1 – Kickoff Meetings and Monthly Progress Reports (NASO/DNA/NALFF/NSA HR - NWA/NLON)**

#### **Subtask 1.1 - Kickoff Meetings:**

Within 15 days of Notice to Proceed (NTP), the Cooperator shall participate in a project kickoff meeting to be held in person or via conference call. If in person, a conference room will be made available for local participants by the NRM of the installation at which task(s) is to be performed. As part of the kickoff meeting, the Cooperator shall provide a plan of action and milestones (POA&M) in accordance with the requirements and dates and times indicated in this scope of work (SOW). The Cooperator will provide draft and final meeting minutes summarizing the results of any meetings/teleconferences held with the installation NRM and the COR.

The cooperator should plan to have one kickoff meeting for each projects supporting NAS Oceana, DNA, NALF Fentress, and NSAHR Northwest Annex and Subbase NLON and will include appropriate individuals associated with said properties. Cooperator can request additional teleconference calls or face to face meetings with the COR and NRMs as needed to address concerns with the project.

## **Subtask 1.2 - Monthly Progress Reports:**

Monthly progress reports will be submitted to the Navy COR and NRMs via email no later than the 15<sup>th</sup> day of each month. See Reporting section for more details.

## **Task 2 – Monarch Butterfly Survey and Habitat Assessment (NASO/DNA/NALFF)**

Survey for all life stages of the Monarch butterfly and conduct a mapping effort of stands of milkweed on the Installations. Milkweed is a plant directly linked to the livelihood of Monarch butterflies. In 2020, USFWS added the Monarch butterfly to the candidate species list under the Endangered Species Act. Monarch butterflies and milkweed are known to occur on the installations. Of the mapped milkweed locations, cooperators will identify potentially significant stands of the plant for proper management to support the conservation of the butterfly. Survey effort will utilize a combination of desktop analysis to focus efforts based off existing installation GIS data and meandering in-field surveys. Once a milkweed stand is identified the stand is to be mapped utilizing GPS technology that meets or exceeds Navy GIS EV-Model established requirements. Mapped stands will be characterized and ranked based on potential significance to local/migrant monarch butterfly populations. Enhancement/restoration recommendations will be provided for stands of milkweed that would provide an elevated benefit to the local/migrant monarch butterfly populations.

Monarch butterflies are known to migrate through southeast Virginia and northeast North Carolina (SE VA/NE NC). Migrating butterfly swarms have been documented at NALF Fentress (Chesapeake, VA) through the use of radar and field observation. Monarch butterflies and milkweeds have been observed on most Naval installations in SE VA/NE NC. Literature research indicates that there is a direct tie to monarch survival and milkweed populations. Research also indicates that pesticide utilization is killing milkweed, which in turn is negatively impacting the reproductive success of Monarch butterflies.

Proactively conserving habitat for the monarch butterfly could be utilized to avoid receiving a critical habitat designation on the installation(s). Not properly managing for species of concern could: open the Navy and the base to lawsuits from the public; result in very costly mitigation and permitting requirements; and could stop or at least restrict military mission operations (resulting in loss of required military training and the associated costs with such a situation). Ensuring that critical habitat designation does not occur on the installation helps to reduce potential restrictions and regulatory oversight that could be placed on the installation which could greatly reduce military mission and training activities, and increase costs to general operations on the installation.

All survey areas and locations shall be recorded in GIS format, in accordance with the GIS Data Deliverables Specifications (detailed later), in the feature class NaturalResourceSurvey using the appropriate geometry. All species observations (both flora and fauna) shall be similarly recorded

in GIS format in the feature class SpeciesLocation using the appropriate geometry. All delineated species habitat shall be similarly recorded in GIS format in the feature class SpeciesSpecificHabitat using the appropriate geometry.

### **Task 3 – Species and Habitat of Concern Protection (DNA)**

#### **Subtask 3.1 – Dune Delineation and Assessment (DNA)**

Conduct an update to the DNA dune delineation and assessment, last completed in 2014. DNA contains approximately 4 linear miles of beach and dunal systems.

Report should analyze the changes/conversions of the dune classifications between the prior report and this report.

All survey areas and locations shall be recorded in GIS format as before, in the feature class NaturalResourceSurvey using the appropriate geometry. All species observations (both flora and fauna) shall be similarly recorded in GIS format in the feature class SpeciesLocation using the appropriate geometry. All delineated dune area shall be similarly recorded in GIS format in the feature class LandManagementZoneNatRes using the appropriate geometry.

#### **Subtask 3.2 - Tiger Beetle Survey/Habitat Assessment (DNA)**

Conduct tiger beetle surveys and habitat assessments of all suitable habitat on DNA. DNA contains approximately 4 linear miles of beach and dune systems. In FY2018, *H. dorsalis media* and in FY2010 *Cicindela trifasciata ascendens* tiger beetles were reconfirmed to be utilizing the beaches of DNA. Neither species located is on the ESA listed species, but *H. dorsalis media* is a species of concern to the state and is an indicator that there may be more suitable habitat for the species and others than was previously known. Through coordination with regulatory and subject matter experts in the state of Virginia, it was determined that more information on the use of DNA by tiger beetles was warranted.

It is recommended to coordinate with VDNWR & VNHP subject matter experts, and Dr. C. Barry Knisley, Paul H. Wornom Professor of Biology, Emeritus, at Randolph-Macon College regarding designing and conducting survey efforts. Dr. Knisley is referenced in a number of Installation reports, conducted work at VAANG SMR in 2018, and confirmed the species identification for DNA in 2018.

All survey areas and locations shall be recorded in GIS format as before, in the feature class NaturalResourceSurvey using the appropriate geometry. All species observations (both flora and fauna) shall be similarly recorded in GIS format in the feature class SpeciesLocation using the appropriate geometry. All delineated species habitat shall be similarly recorded in GIS format in the feature class SpeciesSpecificHabitat using the appropriate geometry.

#### **Task 4 – Threatened and Endangered Species Inventory - Various Species (DNA)**

Conduct Presence/Absence Inventory of Federal and State Threatened and Endangered (T&E) Species, Species at Risk (SAR) and Vegetation Communities of Concern. A complete updated list of known, potential T&E species (under all taxonomic groups), and SAR or watchlist species and vegetation communities will be developed and used to focus inventory surveying efforts. Surveys will be conducted utilizing standard techniques approved by USFWS, State Wildlife and Natural Heritage Programs, NOAA Fisheries (if applicable) and DoD. Any ground disturbing techniques will have prior coordination with base planning and environmental to ensure no threats to resources, utilities, and surveyor safety per direction of NRM.

Project will also review INRMP and all prior Natural Heritage Inventories (NHI)/Listed Species Survey Reports' identified Special Interest Areas (SIAs) for conservation management and determine based on the results of the newly contracted Threatened & Endangered Species Inventory and other prior survey results: if these existing, and/or proposed SIAs are still valid and why; if the existing SIA boundaries are recommended for alteration, the extent of the proposed new boundaries and why; if new SIAs are recommended, the extent of the proposed boundaries and why; and provide management recommendations within each of the recommended SIAs (existing, altered and new).

Surveys will not be conducted for species that are covered by a more frequently surveying effort that has already documented the presence of the species on the installation. The following species surveys are not required under this task: Nesting sea turtles (last surveyed Aug 2024, and surveys are conducting daily each year from May-Aug), nesting bald eagle (last surveyed Mar 2025), migrating/nesting shorebirds (piping plover, roseate tern and red knot (last surveyed Mar 2025, done monthly), bat (last surveyed June 2022, next survey is to be completed under a separate task in this agreement), and monarch butterfly/habitat (last surveyed Sep 2019). Though these species may not be required as part of this task's survey efforts, they should be listed in the deliverable report's species list. The report should indicate that these species are not being surveyed under this task and indicate the last survey effort completed or any current survey work in progress for the species. Results from frequently conducted surveying efforts will be summarized and referenced in this report. If a species is documented while surveying for other species it should also be documented in this report and associated other deliverables.

Cooperator is responsible for updating the Installation's NHI report. The objective of this task is to determine the presence of state and/or federally listed threatened or endangered species or species of concern that may occur at DNA. This task will require a minimum of four (4) multi-day on site field surveys, which will span across all seasons (summer, fall, spring, and winter), as appropriate. Surveys should be completed using approved time of year specific survey methodologies for anticipated species and communities of concern. Survey locations should be located in suitable habitat that has not been previously surveyed, unless there is no additional suitable habitat to survey.

See below Subtasks for further requirements.

#### **Subtask 4.1 - Species and Communities Identification**

Species and communities for survey (flora and fauna) include:

- Federally listed species and communities (Endangered, Threatened, Candidate, and Proposed) under the Endangered Species Act;
- Federally identified watchlist species and communities;
- State listed species and communities (Endangered, Threatened, and Candidate); and
- State listed watchlist species and communities.

Cooperator will need to obtain the most current listings of species and communities from the appropriate regulatory (Federal and State) agencies.

Cooperator will need to identify what species on these lists could reside on the installation.

Cooperator will need to identify if the installation hosts suitable habitat/land conditions for the identified species. The Installation can provide the following information to help make these determinations: historic species of concern survey reports and associated available GIS data; Vegetation Classification maps and GIS data; Forest Inventory Reports and available GIS data; Imagery; and Stream Assessment Reports and available GIS; wetlands maps and GIS data; and available soils maps and GIS data. The installation will provide a copy of the most current version of the Integrated Natural Resources Management Plan (INRMP).

Note: the INRMP does not currently contain site specific reports (e.g., wetlands, vegetation classification, etc.) for the following NASO properties: Midway Manor Housing Parcel (88 acres); NEXCOM Headquarters or Beverly Parcel (10 acres). For these parcels publicly available resources should be utilized to aide with site habitat assessments (e.g., National Wetlands Inventory, USGS National Gap Analysis Program data, National Vegetation Classification Maps, State Landcover Maps, City Available data, etc.).

Cooperator will need to include in their report the comprehensive list of species and communities that the regulatory agencies have identified as potentially occurring on the installation. This list can be in tabular form and must contain the following information: Installation Name; Species/Community Common Name; Species/Community Scientific Name; Federal Status/Rank; State Status/Rank; Habitat; and If Potential Habitat is Present on the installation.

Cooperator will need to include in their report species and vegetative communities descriptions and representative photos.

## **Subtask 4.2 - Presence/Absence Surveys of Suitable Subtask 4.1 Identified Species and Communities**

Cooperator will survey for all subtask 4.1 identified, unless otherwise documented in this SOW, species and communities for which potential habitat are present on the installation.

Report will include detailed survey methodologies (this also includes survey equipment and computer software specifications) to confirm presence/absence of a species.

Report will include survey results.

Report will include figures identifying areas surveyed and species and vegetation community observation locations. Figures will be labeled to clearly identify survey types, survey areas, species, communities, etc.

Report will include survey discussion (be sure to identify: survey issues/problems; why the species was or was likely not observed; why a species may have been previously identified, but not identified during this survey effort, etc.).

Report will include Management Recommendations for Species and Veg. Communities (also include recommended survey methodology changes or follow-on recommended surveys and why).

Cooperator will provide GIS data that provides: survey area boundaries (polygon), these are the areas that identify the full extent of what portion of the installation was surveyed for a particular species/community given the utilized survey technique (e.g., an acoustic device captures data from more than just a point location, it captures a larger area); survey transects (lines); survey point locations (points); species observation points; and extent of observed community boundaries. Cooperator will collect GIS data for each confirmed species occurrence.

Photos should be taken of: the survey sites to document habitat at the location and provide a visual location of the survey site; the installed equipment, transects, traps, etc.; and the observed species and communities.

The Appendix of the final report should contain a photo log. The photo log should include: Project Title; Contract Number; Installation; Associated Survey Location; Latitude; Longitude; Species or Community Type; and Brief Photo Description. A table should be developed that is joinable to the GIS data allowing an individual to click on a datapoint in the GIS and be able to observe the associated photos taken at that point. (Photos should be joinable/associated with survey GIS layers.)

All data collected at survey sites, including target and non-target species identifications, shall be recorded on datasheets and placed in an appendix of the final report. All data should have an

associated Global Positioning System (GPS) location recorded on the datasheets and within the geodatabase to be submitted with this project. All recorded species information should be placed in the appropriate location within the Navy Geodatabase submitted for this project. For data that are collected and non-compliant with the Navy's NDM requirements, they can be placed into the geodatabase as either stand-alone feature classes or joinable tables that link to existing NDM feature classes, as appropriate.

Equipment specifications documentation, surveyor qualification documentation, and all permits associated with the project should be housed in appendices within the final report.

A Latitude/Longitude list of both survey locations and observation locations should be kept in the appendix of the report.

#### **Subtask 4.3 - Assessment and Recommendations of Existing and Proposed Special Interest Area (SIA) Designations**

Based on results from presence/absence surveys and field visits as appropriate, cooperator will need to assess the existing installation identified SIAs, and provide recommendations as to if these SIAs are warranted to maintain or not, and why.

Cooperator will need to provide recommendations for if the boundaries of SIAs should be altered, and why. Cooperator will need to provide GIS data identifying recommended alterations to SIAs.

Cooperator will need to provide recommendations for if new SIAs should be added, and why. Cooperator will need to provide GIS data identifying recommended new SIAs.

Cooperator will need to include one or more figures within the report that depicts existing SIAs, recommended modified SIAs, and recommended new SIAs.

Cooperator will need to include SIA descriptions and purpose of the SIA.

Management Recommendations for SIAs (also include recommended survey methodology changes or follow-on recommended surveys and why).

Equipment specifications documentation, surveyor qualification documentation, and all permits associated with the project should be housed in appendices within the final report.

#### **Subtask 4.4 - GIS Collection and Processing**

Methodologies, equipment, software, etc. utilized to create, collect, process and analyze data should be included in the report as part of the methodologies and appendices sections and in the GIS data deliverables associated metadata.

Regarding survey location GIS data: the Navy expects the GIS deliverable to include these data in the NaturalResourcesSurvey, NaturalResourcesSurveyL, and NaturalResourcesSurveyP feature classes, as appropriate, at a minimum. Additional NDM feature classes should be used where appropriate.

Regarding species &/or vegetation community observation GIS data (Veg Communities should be mapped/polygonal data). The Navy expects the GIS deliverable to include these data in the SpeciesLocation, SpeciesLocationA, SpeciesLocationL, SpeciesSpecificHabitat, SpeciesSpecificHabitatP, SpeciesSpecificHabitatL, and Vegetation feature classes, at a minimum. Additional NDM feature classes should be used where appropriate (Note, non-native invasive species located and recorded during the survey effort get recorded in the SpeciesSpecificObservation feature class.)

Regarding mapping & GIS of SIAs for conservation need (this may include re-verification of existing SIAs, recommended alterations to existing SIAs, and/or addition of additional SIAs), the Navy expects the GIS deliverable to include these data in the LandManagementZoneNatRes feature class, at a minimum.

Additional NDM feature classes should be used where appropriate.

All biological data collected during survey efforts must be located in tables that are joinable to the GIS layers. Joinable tables must use the attributes “environmentaldataidfk” and “environmentaldatatablename” in the Navy GIS, and should be included in any geodatabase deliverables.

Additional information regarding GIS deliverable requirements can be found in the GIS Data Deliverable Specifications section of this document.

## **Task 5 – Listed and SAR Bat Species Surveys and Tracking (DNA)**

Conduct base wide monitoring/roost/hibernacula tracking/identification surveys of bats, with a focus on the Northern long-eared bat (NLEB) and the Tri-colored bat (TRCB). Conduct mist-netting, radio tracking, and acoustic monitoring efforts in accordance with current USFWS and State guidance from the baseline survey effort. Radio track 5-10 female bats (reproductively active, preferred) at each installation. Identify known roosting sites/habitat, and hibernacula on the installation. Establish the extent of use by this species on the installation (what habitats does the species utilize, where, when, and for what purpose). For migrant species establish anticipated species arrival and departure dates for the installation.

If tracking is scheduled and targeted species (NLEB and/or TRCB) is not captured, the use of purchased radio tags on other species-at-risk (SAR) bat species is acceptable, as long as proper

State/Federal permitting is obtained and coordination/approvals with/from both Navy NTR for the contract and Installation Natural Resources Manager (NRM) has been completed/obtained.

The following methods of bat survey work are expected to be completed for this contract. The mixture of necessary methods to best provide a complete understanding of bat species diversity and activity rates at the installation. Further, the latest guidelines outlined by the USFWS should be followed specifically with respect to: Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines ([Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines | U.S. Fish & Wildlife Service](#)); and if applicable at time of field work, additional USFWS guidelines for Tri-colored bat. The cooperator is responsible to work with the installation's NRM to ensure survey locations are established in priority areas within the installation's Natural Resource program.

#### **Subtask 5.1 - Acoustic Surveys**

A combination of long term and short term acoustic surveys are required under this project effort. Full spectrum detectors will be utilized. Industry standard quality assurance and quality control measures will be implemented by the cooperator to ensure the detectors remain functional through the duration of the project.

For long term monitoring, two (2) fixed acoustic detector stations will be installed and operated for an approximate 8-month timeframe to cover the spring migration, summer maternity, and fall migration periods. Each acoustic detector will be powered by a solar panel and a technician will check the detectors and download data once a month during the survey period.

For short term monitoring, four (4) to six (6) battery powered detectors will be required.

- a. One (1) acoustic device should be deployed adjacent to each mist-netting area. If a mist net is setup outside of the ideal range for an acoustic recording device to capture bat occurrences near that net, then a separate acoustic device should be deployed associated with that netting effort. It is expected that this device(s), will move around in association with mist netting activities.
- b. Remaining detectors should be deployed and record for seven (7) to ten (10) nights before removal to capture presence/absence data for areas that cannot be surveyed via mist-netting acoustic surveying activities.

To help focus surveying efforts, the NRM will work with the cooperator to construct a map indicating areas of interest to sample (or sites that are expecting forest clearing). The number of detectors to deploy in an area will be determined by the size of the area to be disturbed. The Guidelines stipulate two acoustic bat detectors per 123 forested acres, surveying for a minimum of two calendar nights during the summer survey window. This varies depending on region and state but for Virginia Summer Occupancy: 1 April – 15 July; Pup season: 1 May – 15 July; and Winter Torpor: 15 Dec. – 15 Feb.

A subset of acoustic recordings will be vetted to manually confirm species presence at each installation. USFWS 2024 (or later) Range-Wide Indiana and Northern long eared Bat Survey Guidelines should be followed to provide a list of species present and their activity rates.

Cooperator will provide plots of seasonal activity to assess changing activity level across the year to hone in on migration and summer resident activity patterns.

For each acoustic detector, create point GIS data for each acoustic detector in the feature class NaturalResourceSurveyP and a corresponding polygon, representing the effective detection area of each acoustic detector, in the feature class NaturalResourceSurvey.

For each species detected per day at each acoustic detector, a polygon record shall be created in the feature class SpeciesLocationA. The number of detections (aka passes) of the specific species during the period shall be recorded in the attribute FeatureDescription, in a manner like or similar to “n = 12”.

## **Subtask 5.2 - Mist-netting, Radio-tracking and MOTUS-tracking Surveys**

The U.S. Fish and Wildlife Service currently lists the Tri-colored bat (TRCB) as Proposed Endangered. If, during the period of performance of this contract the tri-colored bat is officially listed as Endangered, any new protocols or developments with survey guidelines shall be adhered to as outlined by USFWS protocol and applied to this and aforementioned tasks. On November 29, 2022, the U.S. Fish and Wildlife Service published a final rule to reclassify the northern long-eared bat as endangered under the Endangered Species Act. The northern long-eared bat now faces extinction due to the range-wide impacts of white-nose syndrome, a deadly disease affecting hibernating bats across North America. Space use utilization study for Northern Long-eared bats (NLEB) and other rare, threatened, and endangered (RTE) bats (i.e. TRCB) will be conducted and the main focus of this subtask. The survey is designed to follow up on previous work at the Installations that documented NLEB and other RTE species (i.e., TRCB, Little brown bat, Rafinesque’s eastern big-eared bat, etc.) with a focus on Myotis and Perimyotis species.

Additionally, all species caught should be documented accordingly regardless of whether or not they are in the same genus as Myotis species. Efforts should be focused on areas where known occurrences of NLEB have been documented during previous survey work as well as other areas recommended by the NRM to maximize capture probability; focus can be placed on locations where positive acoustic data exists without NLEB captures, where habitat removal actions are proposed, and/or where ideal habitat and capture conditions coincide.

- a. There will be a minimum of two mist netting events: 1) maternity season event with radio tracking; and 2) Fall or Spring migration season event with motus tracking (for migrant species only). Mist-netting surveys will occur for a minimum period of 10 calendar nights per season. Cooperator will continue to survey beyond the aforementioned 10 calendar nights per season, until the minimum 5 transmitters have been deployed beyond a reasonable extent practical.

A minimum of 5 and maximum of 10 Myotis bats or other RTE/SAR species of bat collected, if there is an absence of Myotis species, will be fitted with a small radio

transmitter and radio tracked for at least 5 days or to obtain spatially independent locations, to the maximum extent practicable to determine roost locations and exit counts following USFWS IBAT protocol. The Government is to only be billed for the number of transmitters deployed. The Government is not responsible to obtain permission of private landowners around installation. Cooperator shall plan for extreme temperatures and obtain suitable adhesives to ensure transmitter will stay attached to the maximum extent practicable, for the duration of tracking. Focus will be on NLEB, especially lactating females, but other RTE/SAR bats may be fitted to maximize the number of transmitters deployed.

- b. Mist netting and captured bat collected information will include at a minimum: site name; net name; capture location (Latitude/Longitude); release location (Latitude/Longitude); date; survey start time; capture time; survey end time; survey start temperature; survey end temperature; percent cloud coverage; percentage of moon; wind miles per hour; precipitation; species; sex; age class; reproductive status; weight; ear length; photograph identification numbers; right forearm length (RFA); ear length; wing score; general health score; presence of white-nose syndrome symptoms; presence of other documented health concern (specify the concerns); recapture status; and if applicable, band and/or motus tag number.
- c. Unless recommended otherwise by USFWS, captured bats will be banded with metal bands and/or tagged with MOTUS tags in accordance with USFWS and State regulations. Bats with existing bands and/or tags will not be banded or tagged (during migration surveys, if a bat is banded but not tagged, it can be tagged), but will be identified as a recapture, the existing band and/or tag data will be recorded, information on if the animal had previously been documented on the Installation will be recorded, and the originating banding location and banding date recorded on datasheets and in the report. It is understood that some animals may not be banded due to animal stress or health condition stressors and the determination to band an animal will be at the discretion of the on-site permitted bander.
- d. Motus tagged bats will be tracked for up to 90 days from the date of capture/tagging, or the manufacturer's lifespan of the tag (post activation), whichever is greater. Reports and GIS data will include data and maps on which MOTUS towers documented the bat's presence and the associated dates and times. To create a survey area polygon and associated observation location for the MOTUS survey effort, each MOTUS tower should be buffered to create the maximum distance from that tower where the tag could have been recorded.
- e. Wing biopsies and blood sample collection for other research is authorized, if permitted by USFWS and state agencies; however, these are not required nor funded under this project. If biopsies or blood samples will be collected, permits, detailed methodologies and results shall be provided to the Navy.
- f. Photo documentation. Photographs should be taken of each captured animal (regardless of species) and appropriately cataloged and provided in a digital photo library

(representative photos from each bat species captured should be utilized in the deliverable report). Habitat photographs/Survey Location Representative photos should be taken of each mist netting and acoustic recording location.

- g. Radio tracking will occur during the night as well as during the day. The objective of radio tracking will be to determine maternity roost locations, roost site selection, foraging movements, and use of the Installation in greater detail than previous tracking efforts.
- h. Radio tracking and MOTUS tracking devices must obtain Naval Ordnance Safety and Security Activity (NOSSA) approval for use on base before being deployed. The following devices have already received approval for deployment with the following requirements, do not touch ordnance and stay 10ft away from any fuels or ordnance when operating tracking units:
  - a. Transmitter, HOLOHIL BD-2N
  - b. Transmitter, ATS A2405 series (A2414)
  - c. Transmitter, ATS R1600 series (R1680)
  - d. Receiver, ATS-R2000-R4000
  - e. Receiver, ATS-R410-R4980 (between 140-220 – 4 Mhz range)

All other transmitter requests will require prior approval, which may take several months to obtain for new requests. Copies of equipment specification and frequencies to be utilized will be required. If a transmitter being requested has received approvals for use on other Naval Properties, it is recommended to provide proof of approvals to help with expediting review for approval.

- i. Detailed mist netting and roost site characterization will be documented and emergence counts will be conducted at all roost sites located.
- j. GIS spatial analysis will be conducted to determine NLEB home range per bat as outlined by USFWS, and maps and GIS data (in the feature class SpeciesSpecificHabitat). Utilization distributions on the individual and population level will also be determined if a suitable number of foraging and roost location points (day and night roosts) are able to be located.
- k. GIS spatial buffers of NLEB maternity roost trees will be created to represent the 150ft prohibited tree clearing buffer around the maternity roost during the pup-rearing season, as outlined by USFWS. Roost locations will be recorded as points in the feature class SpeciesSpecificHabitatP, one point for each roost.
- l. Create a center point GIS file for each deployed net location in the feature class NaturalResourceSurveyP. This GPS location will be utilized as the observation point for each animal captured in the respective net.

- m. GIS data is to be collected for every individual animal captured (regardless of species), in addition to the targeted species, during the survey effort and the data is to be included in the contract GIS geodatabase deliverables. These data will be documented in the feature class SpeciesLocation.

### **Subtask 5.3 - Visual Surveys of Potential Man-made Roosts and Hibernacula**

Conduct summer and winter surveys for roosting bats and/or evidence of prior roosting bat activity of human-made potential roosts and hibernacula on Installation and immediately adjacent to the Installation, if it is a public access structure (e.g., State Department of Transportation or Local Municipality culvert or bridge that abuts or services the Installation).

- a. Culverts, bridges, bunkers have the potential to provide optimal micro-climates for summer roosting (including maternity colonies) and/or winter hibernacula. Culverts, bridges and bunkers will be visually surveyed during the maternity season and again in the winter to detect potential bat use.
  - a. For culverts and bridges surveys, ensure to follow guidance in the USFWS issued Range-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines and the User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat (<<https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat>>). Additional resources can be found at <<https://www.fws.gov/media/bats-and-transportation-structures-references-and-additional-resources>>.
    - i. Ensure to utilize the most current Version of the Appendix D: Bridge/Structure Bat Assessment Form
    - ii. For culverts, USFWS IPaC guidance currently requires surveys at a minimum for culverts meeting the following dimensions 4+ feet in height and 130+ feet in length.
- b. Where authorized, both cameras and portable acoustic detectors may be used to increase the possibility of detection in man-made structures at the Installation.
- c. GIS data is to be collected for every animal observed (regardless of species), in addition to the targeted species, during the survey effort and the data is to be included in the contract GIS geodatabase deliverables. These data shall be documented in the feature class SpeciesLocation. Roosts and hibernacula shall be documented in the feature class SpeciesSpecificHabitat in the appropriate geometry.

### **Subtask 5.4 - GIS Collection and Processing**

Methodologies, equipment, software, etc. utilized to create, collect, process and analyze data should be included in the report as part of the methodologies and appendices sections and in the GIS data deliverables associated metadata.

Regarding survey location GIS data: the Navy expects the GIS deliverable to include these data in the NaturalResourcesSurvey, NaturalResourcesSurveyL, and NaturalResourcesSurveyP feature classes, as appropriate, at a minimum. Additional NDM feature classes should be used where appropriate.

Regarding species &/or vegetation community observation GIS data (Veg Communities should be mapped/polygonal data). The Navy expects the GIS deliverable to include these data in the SpeciesLocation, SpeciesLocationA, SpeciesLocationL, SpeciesSpecificHabitat, SpeciesSpecificHabitatP, SpeciesSpecificHabitatL, and Vegetation feature classes, at a minimum. Additional NDM feature classes should be used where appropriate (Note, non-native invasive species located and recorded during the survey effort get recorded in the SpeciesSpecificObservation feature class.)

Additional NDM feature classes should be used where appropriate.

All biological data collected during survey efforts must be located in tables that are joinable to the GIS layers. Joinable tables must use the attributes “environmentaldataidfk” and “environmentaladatatablename” in the Navy GIS, and should be included in any geodatabase deliverables.

Additional information regarding GIS deliverable requirements can be found in the GIS Data Deliverable Specifications section of this document and within individual task/subtask sections.

### **Task 6 – Species and Habitats of Concern (NWA)**

This task will focus on implementing a habitat enhancement and restoration project in support of Habitats and Species of Concern in accordance with the NSA HR’s INRMP and State Wildlife Action Management Plan (SWAMP), identified ESA goals and objectives. The focal species for this project are Monarch butterfly and American bumblebee.

The INRMP identifies several state and federally listed species of concern occurring on the installation (Northern long-eared bat, Rafinesque's big-eared bat, southeastern dismal swamp shrew, canebrake rattlesnake, etc.) and habitat that has the potential to harbor or support more (ie Monarch butterfly, Tri-colored bat).

Conducting habitat enhancement projects for these species noted above is the primary objective of this task by converting mowed or cleared sites into natural areas with wildflower plots to support pollinators and sequentially supporting other native wildlife (including but not limited to T&E species). Posting Protected Area signs around the pollinator habitat etc. will be expected as well.

The effort will focus at NWA on the establishment of an approximately 1-acre plot of land recently (FY24) cleared of unwanted trees and vegetation at the intersection of Douglas Munroe Road, and Wilderness Road for the development of pollinator habitat. Up to 15,000 sq feet of the parcel is expected to be planted to develop pollinator habitat within the larger parcel. This could be one or multiple areas.

The NWA planting area was chosen as it is a former agricultural area which was allowed to grow fallow. The area was cleared of vegetation with sapling trees mulched in place. Current thriving emergent vegetation indicates that the soils are sufficient for planting with no soil amendments. In addition, the area is thought to have sufficient mulch in place where additional mulch is not anticipated to be necessary.

The CESU partner will provide planting recommendations for the strategic placement of up to 15,000 sq feet of pollinator gardens within the larger 1-acre parcel within one area or multiple areas. CESU partner will provide a simple planting plan with proposed species, planting recommendations, and designated location(s). The planting plan should be reviewed and approved by the NRM prior to implementation.

The proposed vegetation would need to be provided as plugs planted on approximately 2' centers. The area will need to be mowed every two years to prevent the growth of volunteer tree species. Therefore, the proposed vegetation will need to be able to thrive under these conditions.

The NWA planting area would require that the CESU partner, contract with a local habitat restoration specialist or landscaping company to provide and plant the proposed vegetation.

CESU partner will design and purchase markers for each planting area. Markers are to identify planting areas. The Navy will install all signage on-site.

All organic material purchased for this project must be certified noxious weed free.

CESU partners are welcome to assist with the physical installation of the planting material, but it is not a requirement of this agreement.

## **Task 7 – Inventory and Assessment, Mist netting and Tracking of Bat Species at Risk (NLON)**

### **Bat Survey Monitoring Specifications at NLON**

The following methods of bat survey work are expected to be complete under this cooperative agreement at NLON. Each site will use a mixture of necessary methods to best provide a complete understanding of bat species diversity and activity rates at the installation. Further, the latest guidelines outlined by the USFWS should be followed specifically with respect to Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines (March 2023) ([Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines | FWS.gov](#)). The cooperator is responsible to work with the installation's NRM to ensure survey locations are established in priority areas within the installation's Natural Resource program.

#### **Subtask 7.1 Presence/Absence Acoustic Surveys at NLON.**

Baseline Acoustic Surveys at NLON. Low level acoustic surveys would entail an extended presence/absence survey during the maternity period (May 15 to August 15). A minimum of three stationary full spectrum acoustic bat detectors will be deployed (battery powered) and will record for seven to ten nights before removal at each installation.

The NRM will provide a list of areas of interest, or sites that are expecting forest/tree clearing, if applicable, to be surveyed. A habitat assessment and presence/absence acoustic survey will be performed in the targeted areas of interest following the USFWS's newest version of the range-wide Indiana and northern long-eared bat survey guidelines (March 2023 or later).

- a. The number of sites will be determined by the size of the area to be disturbed. The Guidelines stipulate two acoustic bat detectors per 123 forested acres, surveying for a minimum of two calendar nights during the summer survey window of May 15 to August 15.
- b. Full spectrum bat detectors will be used and the NRM will work with the cooperator to construct a map indicating areas of interest to sample.

A subset of acoustic recordings will be vetted to manually confirm species presence at NLON; the subset shall confirm or deny a significant statistical accuracy of species on the installation based on guidelines set forth by the USFWS. A list of species present and their activity rates will be provided.

Create point GIS files for each species confirmed encountered ("observed") on a given night (point location is the GPS location of the acoustic recording device).

Create polygon GIS files for the survey area associated with the location of an acoustic device. This is the estimated area that the recorder will/would successfully pick up bats calling that would be suitable for species identification/confirmation.

## **Subtask 7.2 Baseline Acoustic Surveys at NLON.**

Medium level acoustic surveys would entail long term monitoring at 2 fixed acoustic detector stations at NLON and high level will entail 4-6 acoustic detector stations. Medium and high level acoustic surveys should span an approximate 8-month period to cover the spring migration, summer maternity, and fall migration periods. Full spectrum detectors will be deployed at areas with high potential for bat activity as well as in areas adjacent to mist netting sites to cover any bats in the area but not trapped in nets. Industry standard quality assurance and quality control measures will be implemented by the cooperator to ensure the detectors remain functional through the duration of the project. Each acoustic detector will be powered by a solar panel and a technician will check the detectors and download data once a month during the survey period.

A subset of acoustic recordings will be vetted to manually confirm species presence at each installation. USFWS 2023 (or later) Range-Wide Indiana and Northern long eared Bat Survey Guidelines should be followed to provide a list of species present and their activity rates. Plots of seasonal activity will be provided to assess changing activity level across the year to hone in on migration and summer resident activity patterns.

Create point GIS files for each species confirmed encountered (“observed”) on a given night (point location is the GPS location of the acoustic recording device).

Create polygon GIS files for the survey area associated with the location of an acoustic device. This is the estimated area that the recorder will/would successfully pick up bats calling that would be suitable for species identification/confirmation.

### **Subtask 7.3 Mist-netting and Radio-tracking Surveys at NLON.**

The U.S. Fish and Wildlife Service currently lists the Tri-colored bat (TRCB) as Proposed Endangered. If, during the period of performance of this cooperative agreement the tri-colored bat is officially listed as Endangered, any new protocols or developments with survey guidelines shall be adhered to as outlined by USFWS protocol and applied to this and aforementioned tasks. On November 29, 2022 the U.S. Fish and Wildlife Service published a final rule to reclassify the northern long-eared bat as endangered under the Endangered Species Act. The northern long-eared bat now faces extinction due to the range-wide impacts of white-nose syndrome, a deadly disease affecting hibernating bats across North America. Space use utilization study for Northern Long-eared bats (NLEB) and other rare, threatened, and endangered (RTE) bats (i.e. TRCB) will be conducted and the main focus of this subtask. The survey is designed to follow up on previous work at the Installations that documented NLEB and other RTE species (i.e., TRCB, Little brown bat, Rafinesque’s eastern big-eared bat, etc.) with a focus on *Myotis* and *Perimyotis* species.

Additionally, all species caught should be documented accordingly regardless of whether or not they are in the same genus as *Myotis* species. Mist-netting surveys will be conducted during the early summer period of 2026 for a period of up to 10 calendar nights to capture any bats that may be present (acoustic presence) but not caught in mist nets previously. Efforts should be focused on areas where known occurrences of NLEB have been documented during previous survey work (if applicable) as well as other areas recommended by the NRM to maximize capture probability; focus can be placed on locations where positive acoustic data exists without NLEB captures. A minimum of 5 and maximum of 10 *Myotis* bats at NLON or other RTE species of bat collected, if there

is an absence of *Myotis* species, will be fitted with a small radio transmitter and radio tracked for at least 5 days or to obtain spatially independent locations, to the maximum extent practicable to determine roost locations and exit counts following USFWS IBAT protocol. Cooperator will continue to survey beyond the aforementioned 10 calendar nights, until the minimum 5 transmitters have been deployed beyond a reasonable extent practical. Transmitters that cannot be used at a NLON, should be utilized at other installations listed in this cooperative agreement (ie NASO properties) and the government should only be billed for the number of transmitters deployed. The Government is not responsible to obtain permission of private landowners around installation. Cooperator shall plan for extreme temperatures and obtain suitable adhesives to ensure transmitter will stay attached to the maximum extent practicable, for the duration of tracking. Focus will be on NLEB, especially lactating females, but other RTE bats may be fitted to maximize the number of transmitters deployed.

- n. Mist netting and captured bat collected information will include at a minimum: site name; net name; capture location (Latitude/Longitude); release location (Latitude/Longitude); date; survey start time; capture time; survey end time; survey start temperature; survey end temperature; percent cloud coverage; percentage of moon; wind miles per hour; precipitation; species; sex; age class; reproductive status; weight; ear length; photograph identification numbers; right forearm length (RFA); ear length; wing score; general health score; presence of white-nose syndrome symptoms; presence of other documented health concern (specify the concerns); recapture status; and band number.
- o. Captured bats will be banded in accordance with USFWS and State regulations. Bats with existing bands will not be banded, but will be identified as a recapture, the existing band data will be recorded, information on if the animal had previously been documented on the Installation will be recorded, and the originating banding location and banding date recorded on datasheets and in the report. It is understood that some animals may not be banded due to animal stress or health condition stressors and the determination to band an animal will be at the discretion of the on-site permitted bander.
- p. Wing biopsies and blood sample collection for other research is authorized, if permitted by USFWS and state agencies; however, these are not required nor funded under this project. If biopsies or blood samples will be collected, permits, detailed methodologies and results shall be provided to the Navy.
- q. Photo documentation. Photographs should be taken of each captured animal (regardless of species) and appropriately cataloged and provided in a digital photo library (representative photos from each bat species captured should be utilized in the deliverable report). Habitat photographs/Survey Location Representative photos should be taken of each mist netting and acoustic recording location.

- r. Radio tracking will occur during the night as well as during the day. The objective of radio tracking will be to determine roost site selection, foraging movements, and use of the Installation in greater detail than previous tracking efforts.
- s. Detailed mist netting and roost site characterization will be documented and emergence counts will be conducted at all roost sites located.
- t. GIS spatial analysis will be conducted to determine NLEB home range per bat as outlined by USFWS, and maps and GIS data (in the feature class SpeciesSpecificHabitat). Utilization distributions on the individual and population level will also be determined if a suitable number of foraging and roost location points (day and night roosts) are able to be located.
- u. GIS spatial buffers of NLEB maternity roost trees will be created to represent the 150ft prohibited tree clearing buffer around the maternity roost during the pup-rearing season (1 June – 31 July), as outlined by USFWS.
- v. Create a center point GIS file for each deployed net location. This GPS location will be utilized as the observation point for each animal captured in the respective net.
- w. GIS data is to be collected for every animal captured (regardless of species), in addition to the targeted species, during the survey effort and the data is to be included in the contract GIS geodatabase deliverables.

#### **Subtask 7.4 Visual Surveys of Potential Man-made Roosts and Hibernacula at NLON.**

Conduct summer and winter surveys for roosting bats and/or evidence of prior roosting bat activity of human-made potential roosts and hibernacula on Installation and immediately adjacent to the Installation, if it is a public access structure (e.g., State Department of Transportation or Local Municipality culvert or bridge that abuts or services the Installation).

- d. Culverts, bridges, bunkers have the potential to provide optimal micro-climates for summer roosting (including maternity colonies) and/or winter hibernacula. Culverts, bridges and bunkers will be visually surveyed during the maternity season and again in the winter to detect potential bat use.
  - a. For culverts and bridges surveys, ensure to follow guidance in the USFWS issued Range-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines and the User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat

(<https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat>). Additional resources can be found at <https://www.fws.gov/media/bats-and-transportation-structures-references-and-additional-resources>.

- i. Ensure to utilize the most current Version of the Appendix D: Bridge/Structure Bat Assessment Form
  - ii. For culverts, USFWS IPaC guidance currently requires surveys at a minimum for culverts meeting the following dimensions 4+ feet in height and 130+ feet in length.
- e. Where authorized, both cameras and portable acoustic detects may be used to increase the possibility of detection in man-made structures at the Installation.
- f. GIS data is to be collected for every animal observed (regardless of species), in addition to the targeted species, during the survey effort and the data is to be included in the contract GIS geodatabase deliverables.

## **Task 8 – Wildlife Survey & Monitoring Equipment and Supplies Procurement (NASO, DNA, & NWA)**

The Cooperator shall procure for and provide the Navy equipment/supplies/material to support project implementation. A detailed list of these needs will be provided at cooperative award. As aforementioned, all purchases will become the property of the US Navy and the appropriate installation.

**Outside of the detailed equipment list to be provided at award, the following details are requested for:**

### **Subtask 8.1 – Pollinator Gardens (NASO & DNA)**

Equipment and supplies for establishing pollinator gardens on NASO and DNA. Not to exceed \$12,000.00. In support of INRMP and State Wildlife Action Management Plan (SWAMP) identified ESA goals and objectives the focal species for this project are Monarch butterfly and American bumblebee. At DNA, six (6) curbed beds already exist (~1,931 sq ft) and would be converted to pollinator garden beds. At NASO, four (4) new raised beds would be installed (total 96 sq ft). The goal is to have sites ready for planting Fall 2025.

The DNA gardens would have soil amended so that the sites are suitable for pollinator garden plant growth. CESU partner will either conduct soil sampling or pay a 3<sup>rd</sup> party to test the soil (e.g., Virginia Extension Office) to determine amendment needs and purchase the supplies for Installation Natural Resources staff to place/physically amend the soil. Testing should also include a soil compaction assessment and an assessment to determine if herbicide treatment is required/warranted on site to

establish a successful garden. If soil requires rototilling, CESU partner will need to purchase a small hand operated tiller for Navy staff to utilize on site. If herbicide is required, the Navy already has certified applicators and glyphosate available to treat the sites.

The NASO gardens would require the CESU partner to purchase and deliver to Installation NRM identified locations four (4) composite material beds each measuring length of 12', width of 4' with a height of 11"-12" and the appropriate amended soils needed to fill the beds. These beds will need a mixture of 60% topsoil, 30% compost, and 10% potting/raised bed mix to fill 9 inches of the beds.

CESU partner will purchase enough mulch to spread 3" thick at each garden location and have mulch delivered to three (3) locations as directed by the NRM, one (1) to DNA, and two (2) different locations on NASO. Mulch will be applied by NR staff and volunteers at time of planting.

CESU partner will purchase and deliver to the NRM's designated location(s) plants and seed to plant in these gardens. See Installation's planting schedule/design for details. CESU partner is welcome to provide expert recommendations to alter existing design, that can be discussed with the NRM before changes can be made to the final design and purchasing requirements.

CESU partner will design and purchase markers (design shouldn't be needed for markers) and visually appealing informational signage for all locations. Marker are to mark off areas for safety purposes (identifying work zones, supply dumping areas, etc.). Signage will include temporary all-weather compatible signage to let people know what is happening (coming soon, future home of..., pardon our mess...) and permanent educational outreach signage that gives information on the importance of pollinator gardens, what species are planted on site, and what species are attracted by the various plants. The Navy has some examples but encourages the CESU partner to be creative.

CESU partners will purchase and deliver to the NRM tarps to be placed on the grounds for soil, soil amendment (if needed), and mulch deliveries.

All organic material purchased for this project must be certified noxious weed free.

CESU partners are welcome to assist with the physical installation of these beds, but it is not a requirement of this agreement.

## REPORTING

Each task should have a separate report. Reports should not include significant installation background data that is incorporated in the INRMP, but should focus on species specific information, survey methodologies, survey results, recommendations, regulatory guidance, technology, prevention, and other pertinent discussions. Cooperator shall be required to produce the following reports:

1. **Monthly progress reports.** MPRs shall be electronically submitted to the NTR and NRM on a monthly basis, and to be submitted concurrently with invoicing. Each report shall include a detailed account of work accomplished at each installation and estimated percentage of work. MPRs shall include a table that denotes the funds spent per month, per fiscal year, with a total for each fiscal year and an overall total for all fiscal years. One table shall be provided summarizing this information for each task. Below is an

example table to be included in each MPR. These reports shall be provided to both the NTR and the NRM no later than 15 days the following month.:

|         | Task<br>Awarded<br>Amount | Period %<br>Complete | Period<br>Invoiced | Cumulative<br>%<br>Completed | Cumulative<br>Invoiced<br>FY25 | Cumulative<br>Invoiced<br>FY26 | Total<br>Invoiced |
|---------|---------------------------|----------------------|--------------------|------------------------------|--------------------------------|--------------------------------|-------------------|
| Task 1: |                           |                      |                    |                              |                                |                                |                   |
| Task 2: |                           |                      |                    |                              |                                |                                |                   |
| Task 3: |                           |                      |                    |                              |                                |                                |                   |
| Task 4: |                           |                      |                    |                              |                                |                                |                   |
| Task 5: |                           |                      |                    |                              |                                |                                |                   |
| Task 6: |                           |                      |                    |                              |                                |                                |                   |
| Task 7: |                           |                      |                    |                              |                                |                                |                   |
| Task 8: |                           |                      |                    |                              |                                |                                |                   |
| Totals  |                           |                      |                    |                              |                                |                                |                   |

2. **Draft reports.** The drafts should include maps (if applicable) for review prior to finalization and GIS data files should be submitted for review as well. Each task shall have an associated individual report. Draft reports and GIS data will be submitted electronically to the COR and NRM. Geodatabases will be submitted to the COR, NRM, and the Environmental GIS Coordinator. The report shall incorporate an Executive summary that is easily transferable to the installation's INRMP during necessary written updates.
3. **Final reports.** The final reports shall be the same format as the drafts and include/incorporate all Government comments/recommendations. All GIS files created as a result of the reporting shall be included. Hardcopy reports will be provided based on installation need and a copy to the NTR and will be determined at conclusion of work. Hardcopy reports will include one or more, as needed, DVDs that include native files not limited to: a digital copy of the hard copy report, correspondences, tables, photos, geodatabases, databases, datasheets, etc. An additional DVD of the geodatabase and all joinable data tables and photographs should be submitted to the Environmental GIS Coordinator.

## PERIOD OF PERFORMANCE

The period of performance for this project shall be from Cooperative agreement Award to 18 months post award.

## **COORDINATION, MEETINGS AND DELIVERABLES**

| <b>Deliverable</b>                                     | <b>No. Copies</b>                                                                                                             | <b>Due Date</b>                                      |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Kickoff (KO) Meeting                                   | Electronic (agenda and meeting minutes)                                                                                       | Within 15 working days following award of task order |
| Progress reports                                       | Electronic                                                                                                                    | monthly                                              |
| Draft Survey Reports, including Draft GIS Deliverables | Electronic                                                                                                                    | Schedule to be determined at KO meeting              |
| Final Survey Reports, including Final GIS Deliverables | Number of Hard Copies and CDs/DVDs of Report, GIS Deliverables and other electronic deliverables will be determined at Award. | Schedule to be determined at KO meeting              |
| Period of Performance Completion                       | N/A                                                                                                                           | Award Date to 18 months post award                   |

Kickoff meetings between the Cooperator, COR, NRM, and other applicable Installation personnel shall be scheduled within fifteen (15) working days following award of the contract. The purpose of the kickoff meetings are to discuss any questions the Cooperator may have regarding the tasks, protocols, access and security requirements/restrictions, issuance of letters, clarify field schedules, anticipated issues, and discuss other pertinent information which could have a bearing on the work to be performed. If needed, up to five (5) teleconferences shall be attended by the Cooperator in order to discuss work progress and performance.

Progress reports shall be submitted electronically on a monthly basis. The progress reports shall be submitted electronically as a Word attachment. The progress reports shall be dated and sent to the COR and NRMs on the 15th day of each month. Each report shall include a detailed account of work accomplished at each installation, estimated percentage of work completed, and costs to date. Each subsequent report shall include work from previous months and any past or future potential issues. Activities planned for the following month shall be incorporated into the report. Progress report structure and information required shall be amended as requested by the Government.

The Cooperator shall request all required files, reports, and plans (including GIS data) through the COR and NRM.

Government comments on initial draft deliverables will be provided within approximately sixty (60) days of receipt of the submittal. Government comments on pre-final draft deliverables will be provided within approximately thirty (30) days of receipt of the submittal. Government comments on and if appropriate approval to finalize the draft final deliverable will be provided within approximately fifteen (15) days of receipt of the submittal.

All reports shall be submitted on 8 1/2 by 11 inch paper with folded maps or tables, as appropriate. All originals will be reproducible by black and white xerography and copies bound, and in digital format. Pages should be printed double-sided to conserve paper. Hard copy documents should be labeled on the front and spine of the documents. Labels should include project title, installations pertaining to the document, and date document was finalized.

Final Reports and other text documents shall be provided in Microsoft Word format AND Adobe Portable Document Format (PDF). Spreadsheet files shall be provided in Microsoft Excel format. Databases shall be provided in Microsoft Access format, unless specified otherwise, as approved by the NTR. Prior to database development, the Cooperator shall provide the Government with a Technical Approach Document for approval, which describes the Cooperator's technical approach to designing and developing the database. All text, spreadsheet, and database files, and

any videos shall be delivered on DVDs. In addition, all digital photographs taken during the project fieldwork shall be submitted on DVDs. All images will be labeled with the title of the image, the location of photograph, date, and photographers' name.

A digitized copy of all raw field data resulting from the analysis of biological sampling shall be submitted to the COR. The format for the raw field data shall be on CD/DVD. The data shall be submitted to the COR for the reports they pertain too.

All digital files, databases, source data acquired for this project, final hard-copy products, and related materials, including that furnished by the Government, shall become the property of the Navy. All materials purchased under this task order shall be considered Navy property. All materials should be inventoried and provided to Navy either upon request or at the completion of the project.

If all tasks are exercised, the following plans/reports shall be submitted:

- **NASO/DNA/NALFF Monarch Butterfly Inventory and Habitat Assessment (Draft and Final)**
- **NASO/DNA/NALFF Anuran Surveys (Draft and Final)**
- **DNA Tiger Beetles and Habitat Assessment (Draft and Final)**
- **DNA Natural Heritage Inventory (Draft and Final)**
- **DNA Bat Surveys (Draft and Final)**
- **NLON Bat Surveys (Draft and Final)**

The Cooperator shall prepare a report summarizing all natural resources species and communities of concern identified to occur or could potentially occur on each installation. All sections of the report will include a detailed description of methodologies utilized, correspondence (physical communication documentation and contact information with Federal, State, and Local Subject Matter Experts should be maintained in an appendix to the report), references utilized and reasoning behind the final results. The report shall be concise, free of grammatical, spelling, and typographic errors and of a quality acceptable for peer-reviewed publication. The reports should not contain significant installation data that is already in the INRMP and ICRMP but should focus on the survey. The COR may reject the draft if the quality of the report (*i.e.*, writing and presentation) does not conform to a professional standard or deviates from the original work plan

The draft report shall be submitted with the GIS deliverables for review by the COR, NRM, and Environmental GIS Coordinator. All comments shall be discussed and/or incorporated before the finalization of the document. The report and associated GIS shall not be submitted as a FINAL REPORT until the COR and NRM have accepted the latest version of modifications. The final reports shall include all of the information contained in the draft reports as modified by Government comment. For each task, the Cooperator shall provide hard copies of the final reports; a set of CDs/DVDs containing the final reports, GIS deliverables and other electronic

deliverables. Hard copies and electronic copies of each report shall be sent to the NTR, the remaining hardcopies and electronic copies sent to the NRM/IR, and the final electronic copy sent to the EV GIS Coordinator.

The Draft and Final Survey Reports shall be in the format of the Wildlife Society's Wildlife Monograph Series as outlined in "Manuscript Guidelines for the Journal of Wildlife Management 2011. <https://www.nacwg.org/jwmguidelines2011.pdf> . Writing style should conform to the CBE Style Manual, 6th edition. The report shall include the following sections (if applicable):

- i. Title Page
  - Title, date, Contract and task order number and location
- ii. Sub-title Page
  - Title
  - Prepared by listing with affiliations
  - Prepared for listing Agreement number and date
  - Recommended citation
- iii. Executive Summary (background, purpose, findings, conclusion, recommendations)
- iv. Table of Contents
  - Table of contents
  - List of tables
  - List of figures (photos are considered figures)
  - List of appendices
  - List of acronyms
- v. Introduction
  - This section should include an overview of the project and relevant background information and clearly state the project's purpose and objectives.
- vi. Survey Area
  - This section should provide a description in sufficient detail of each survey area/region. Maps of sufficient scale shall be included to delineate the location of each species/study area.
- vii. Methods
  - This section should not be quantitative in nature, but should include detailed information describing how and when the work was accomplished. This section should be drafted so installation/contract personnel are able to replicate the survey by reading what is in this section. It is expected that the methods used will be structured and repeatable for future efforts. Survey routes/transects will be documented through GPS and provided to the NTR and IR as a separate GIS layer.
- viii. Results
  - Results shall include, but not be limited to, all data requirements specified in section E. Extensive data sets may be presented

in appendices as appropriate. Results shall be presented in text, tables, and figures, etc. as well as contain an explanation of derived results.

ix. Discussion and Recommendations

- The discussion should be relevant to the purpose of the project as stated above and discuss the meaning of the results presented. The discussion shall summarize sampling results and comment on the analyses.

x. Literature Cited

xi. Appendices (as appropriate)

## **SPECIFICATIONS FOR DIGITAL DATA**

Any maps, drawings, figures, sketches, geospatial data, spreadsheets, or text files prepared for this contract shall be provided in both hard copy and digital form. The hard copy deliverables are defined in another section of this SOW.

### **Text, Spreadsheet, and Database Files:**

The Navy's standard computing software is Microsoft Office. Final Reports and other text documents shall be provided in Microsoft Word format AND Adobe Portable Document Format (PDF). Spreadsheet files shall be provided in Microsoft Excel format. Databases shall be provided in Microsoft Access format, unless specified otherwise, as approved by the Government. All text, spreadsheet, and database files, and any videos shall be delivered on CDs/DVDs. In addition, all digital photographs taken during the project fieldwork shall be submitted on these CDs/DVDs.

### **Maps, Drawings, Sketches, and Digital Geospatial Data:**

All GIS deliverables will be created and submitted in accordance with the current NAVFAC GIS Data Guide GIS Data Deliverable Specifications. All data collection should be conducted using professional GPS equipment (not recreational GPS equipment), and post-processed spatial variance should generally be less than 1m.

## **GIS Data Deliverable Specifications**

### ***1 OBJECTIVE***

The primary objective of this section is to provide detailed specifications for collection and delivery of geospatial data commonly referred to as Geographic Information System (GIS) data. Additionally, this section provides guidance to ensure that all GIS data delivered is compatible and will add value to the NAVFAC Midlant GeoReadiness Center (GRC) Installation Geospatial Information and Services (IGI&S) Geodatabase. The NAVFAC Midlant GRC is the single, authoritative source and distribution point for all geospatial facility data within the region. The GRC houses the most current geospatial information for the entire Region and provides access to the comprehensive data set and analysis tools to Regional and DOD decision makers/managers, sponsored cooperators, and other sponsored individuals via a secure Government Internet site.

Failure to comply with the specifications outlined in this document will result in non-acceptance of data deliverables.

### ***1.1 Point of contact for NAVFAC MIDLANT EV GIS Coordinator***

The Point of Contact (POC) for assistance in preparation of Environmental GIS deliverables is:

NAVAL STATION NORFOLK  
MIDLANT ENVIRONMENTAL GIS COORDINATOR  
9324 VIRGINIA AVENUE  
BLDG N26, FLOOR 3, ROOM 3208  
NORFOLK, VA 23511  
(757) 341-0452 (Main Number)

## ***2 SUBMITTALS***

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Cooperator Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals  
GIS Data Deliverables; G

## ***3 GOVERNMENT GEOSPATIAL DATA, SCHEMA, AND DOMAINS***

Geo-spatial data is based on the Spatial Data Standards for Facilities, Infrastructure and Environment (SDSFIE) Navy Data Model (NDM). Because there are recurring business driven modifications and or adaptations within the SDSFIE schema, provide all spatial and non-spatial data in the most current version utilized by the GRC at the time of delivery.

### ***3.1 Data Request Package Requirements***

Request the existing GIS Data, Schema and Data Collection Guidance (DCG), via the Government sponsor utilizing the NAVFAC MIDLANT Data Release Form.

- a. The GIS Data Request should be submitted prior to the start of data collection efforts and again 4 weeks prior to data delivery to ensure that GIS data has been created and will be delivered utilizes the most up to date SDSFIE schema.

#### ***3.1.1 Instruction for submitting a Geospatial DRP to the Contracting***

Officer Representative (COR):

- a. Each COR will provide NAVFAC MIDLANT Data Release forms upon request from the Cooperator. Complete the request and include all information as instructed on the data release form.

- b. Request only GIS data, schema and domains for feature classes that are relevant to the Contract and within the boundary of project area and provide justifications as necessary.
- c. Attach the Scope of Work, which is defined by this GIS DATA DELIVERABLES section for each GIS Data Request submittal.
- d. Return the NAVFAC MIDLANT Data Release Form to the COR for sponsorship and submittal to the EV GIS Coordinator as instructed with required attachments and justifications for submittal.
- e. Incomplete forms may delay receipt of the requested GIS data.
- f. GIS data deliverables do not supplement or replace as-built drawings.

### ***3.2 Data Collection and Utility Locates***

- a. Utilize the most up to date SDSFIE Schema when delivering GIS Data.
- b. Data shall be collected in the appropriate manner and stored in the proper feature class as defined in the NAVFAC Data Collection Guide (DCG).
- c. Verify the current DCG release version with the Government. The current DCG will be provided by the EV GIS Coordinator.
- d. Prior to GPS efforts all underground utilities are to be located utilizing a utility locating service in order to obtain and verify accurate feature locations.
- e. Actual conditions in the field always supersede drawings. Locate and field verify all features to ensure location is correctly recorded.
- f. Data will be created to represent the real world, for example, water, sewer, and transportations systems will be connected. All segments will be created from source to sink in the direction of flow.
- g. Research may be required to collect data. Verification of existing data [which is located must be coordinated with the COR.
- h. Non-Utility data, may be collected utilizing Sub-Foot or better GPS data collection methods.
- i. Utility data, will be collected utilizing Survey Grade GPS data collection methods.

### ***3.3 Attribute Data Requirements***

- a. Populate all attributes in accordance with the guidelines published in the NAVFAC Data Collection Guide (DCG). Obtain attributes via Contract specifications, plans and record drawings.
- b. Verify the current DCG release version with the Government.
- c. Capture, attribute, and deliver Demolished / Removed Real Property data in the Demolished feature classes which include BuildingDemolished (Area) and StructureDemolished (Area).
- d. Capture, attribute, and deliver Demolished / Removed UTILITY data by creating a new feature class which will consists of adding DEMO to the feature's naming convention for each feature, such as, but not limited to the following examples; DEMO.wHydrant (point), DEMO.swDrainageBasin,(polygon), and DEMO.wLine (polyline)
  - 1. Properly deliver demolished features with the current attributes associated with the feature and additionally updating the new Contract number, date of demolishment, and optional status.

- e. Spatial and non-spatial data may be copied from existing data, with the exception of specific attributes. Potable water wells are an exception to this rule and shall remain in the feature class and attributed as Removed or AIP.
- f. Locate and update Abandoned In Place (AIP) utility lines in the current feature data set and be attributed as AIP as required.

### ***3.4 GIS Topology Rules for Geospatial Data***

All data must be created using GIS topology rules for polygons, points and lines, such as, but not limited to the following examples:

- a. Create utility and transportation systems from source to sink.
- b. Draw all utilities in the direction of flow with no breaks in polyline except for fittings, manholes and other features nodes within the feature Dataset.
- c. Create all utility or infrastructure system data, which is, but is not limited to, transportation system and electrical, water, thermal distribution, and wastewater collection, etc., using GIS spatial connectivity rules which specify that vertex, edge and endpoints be snapped to features within the system.
- d. Close all polygons without slivers and be topologically correct.
- e. All polylines must be topologically correct, and should be connected to avoid undershoots, overshoots and dangles. Cross polylines only if they share a point in common, at least one of which is not an endpoint.

### ***3.5 Global Positioning System (GPS) Data Collection***

Utilize field survey GPS data collected by means of non-recreational GPS equipment.

- a. Do not use bench marks that are not included in the Navy Geodetic Survey Base Station Network GPS data collection.
- b. Mission planning is essential. Utilize the best Position Dilution of Precision (PDOP) values for data accuracy.
- c. Conduct mission planning for GPS collection when positional dilution of precision (PDOP) value is 4 or less.
- d. Spatial accuracy requirements
  - 1. Survey and Sub-Foot GPS grade data collection requirements are as follows:
    - i. Sub-Foot requirements:
      - 1) All points must be within plus or minus 12 inches
      - 2) 95 percent accuracy rate for all points.
    - ii. Survey Grade requirements:
      - 1) All points must be within plus or minus 1 centimeter
      - 2) 98 percent accuracy rate for all points
- e. Capture feature locations without using Offsets. Note all Offsets in the Final Report for each feature.
  - 1. Resubmittal of data will be required if PDOP planning was not observed per this specification.

### ***3.6 Coordinate System Requirements***

Collect data in the following Spatial Reference / Coordinate System for each feature based on the area of interest:

1. Transverse Mercator (UTM) Zone 16N, 17N, 18N or 19N
  - a. World Geodetic System 1984 (WGS84) horizontal datum
  - b. North American Vertical Datum 1988 (NAVD88) vertical datum.
2. Domain precision of 1000 which will result in a database accuracy of 1/1000 m

### ***3.7 Formats and Version Guidelines***

Present all data deliverables in the following formats and/or versions.

1. GIS data will be provided in an ESRI geodatabase matching the current ArcGIS version of the GRC repository. Verify the current version with the COR before any submittals.
2. Microsoft Windows 10 operating system, unless otherwise approved by the Government.
3. Deliver all reports and maps as a hard copy and in a searchable Adobe Portable Document Format (PDF).

### ***3.8 GIS Deliverable Submittal Requirements***

Submit all GIS Submittals for analysis by Government GIS personnel prior to final approval.

Failure to comply with the specifications outlined in this document will result in non-acceptance of GIS data deliverables.

1. Prior to any spatial and non-spatial development, provide the Government with a technical approach document, in PDF format, for review and approval. Describe in detail the Cooperator's technical approach for developing GIS data to include utility locating, collecting, and attributing all GIS data.
2. Provide a GIS deliverable at the end of each phase and at each Beneficial Occupancy Date (BOD) when contracted efforts, studies or construction are delivered in phases.
3. To ensure specifications compliance and quality a preliminary GIS deliverable shall be provided for review when 25 percent of the data has been collected and updated according to this specification.
4. Deliver digital geographic maps, GPS collection files and related data. All working text and documents and personal geodatabase will be included for review in the draft and final delivery of data in PDF format.
5. Do not deliver blank unused schema or feature class data with no attributes. Deliver only data pertinent to the Contract that adds value to the Geodatabase per this section.
6. Do not include existing data in the GIS deliverable.
7. Provide spatial and non-spatial GIS data in a format that does not require translation or pre/post processing.
8. Perform quality assurance for all data and related materials required in this section prior to submitting product to the Government.
9. Analyze for discrepancies in subject content, correct format in accordance with this Section, and compatibility with the existing SDSFIE Schema as well as all other specifications included in this section.

### ***3.9 GIS Deliverable Package Requirements***

Provide all reports in pdf format. Submit each GIS deliverable must containing the following information and be in the most up to date SDSFIE format utilized by the GRC at the time of delivery.

1. Digital and Paper Maps.
  - a. Submit all maps of GIS DATA DELIVERABLES in ANSI C size.
  - b. Include a project title, Contract number, scale, legend, standard symbology, attributes, i.e., building numbers, road names, etc., for each map.
  - c. Label all utilities with direction of flow and segment line size.
  - d. Provide paper copy and pdf copies of Maps for project.
  - e. Provide a copy of all red-line construction drawings in pdf format.
  - f. Communication data will be provided on a separate map.
2. Provide all spatial and non-spatial data for review and acceptance.
3. Provide a report of specific procedures, list GPS equipment, software and versions that were utilized for the GPS data collection and creation of geospatial data.
4. Submit all GPS data files collected in the field.
5. Provide details on any offsets to include justification as to why offsets were utilized and which features and or points offsets were used.
6. Provide the source that was utilized for required attributes, such as redlines drawings and or field notes.
7. Provide a coversheet that specifies the COR, Contract number, Contract title, point of contact for GIS related questions.
8. Submit all geospatial data, reports, spreadsheet, database files, reports, and maps on a Digital Versatile Disc (DVD) platform.
9. Failure to comply will result in non-compliance and rejection of data.

### ***3.10 Ownership***

All digital files, hardcopy products, GPS raw data, source data acquired for this project, and related materials, including that furnished by the Government, will become the property of the Government and will not be issued, posted, distributed, or published by the Cooperator. Deliver all documentation in the final delivery. Note: No endorsement of software or hardware is implied.

Navy GIS data shall not be used for any purpose except for those specified in the contract.

All contract Navy GIS data must be removed from cooperator computer systems upon completion of the contract.

## ***4 ATTRIBUTE DATA COLLECTION AND GPS REQUIREMENTS FOR REAL PROPERTY AND OTHER MISCELLANEOUS FEATURES THAT ARE NOT CONSIDERED A UTILITY***

For Attributes and Data Collection for specific Navy installation, please consult the EV GIS Coordinator, for a checklist and copy of the most recent Data Collection Guide.

### ***4.1 Non-Compliance***

Failure to follow the specification outlined in this document will result in non-acceptance of data deliverable.

Note: Geospatial data delivery does not replace record drawing requirements.

## **D. Period of Performance (POP)**

This project will be presented as a base year with no optional years.

The period of performance of the base year will be project award date through 18 months post award. Project end date can be earlier than period of performance if all tasks are completed and approved by COR and NRM.

## **E. Responsibilities**

### **Natural Resources Manager (NRM)**

1. Will assist Cooperator in development of study methodology and data gathering and analysis, as needed.
2. Will work with Cooperator to capture and fit any tagged fauna with appropriate equipment, as needed.
3. Will provide data necessary to complete deliverables.
4. Will provide comments on all deliverables.
5. Will work with the cooperator to identify appropriate attributes for the data collected.

### **Cooperator**

1. Lead Investigator will provide primary field work labor including surveying, locating, capturing, and tagging, if applicable.
2. To furnish all materials, equipment, supplies, labor and services necessary to conduct the tasks discussed previously except for the items mentioned in this section.
3. To comply with all Occupational Safety and Health Administration (OSHA) requirements. It is the awardees responsibility to conduct all field activities in a manner that ensures the training and safety of the field crewmembers and avoids damage to vehicles and property.
4. To coordinate each visit to installations with the appropriate IR and NTR.

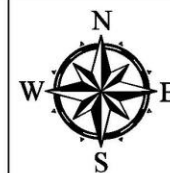
5. Will develop, write, edit, and deliver all deliverables.
6. The cooperator will work with IRs to identify appropriate attributes for the data collected.

## **F. Location of Tasks (Maps)**

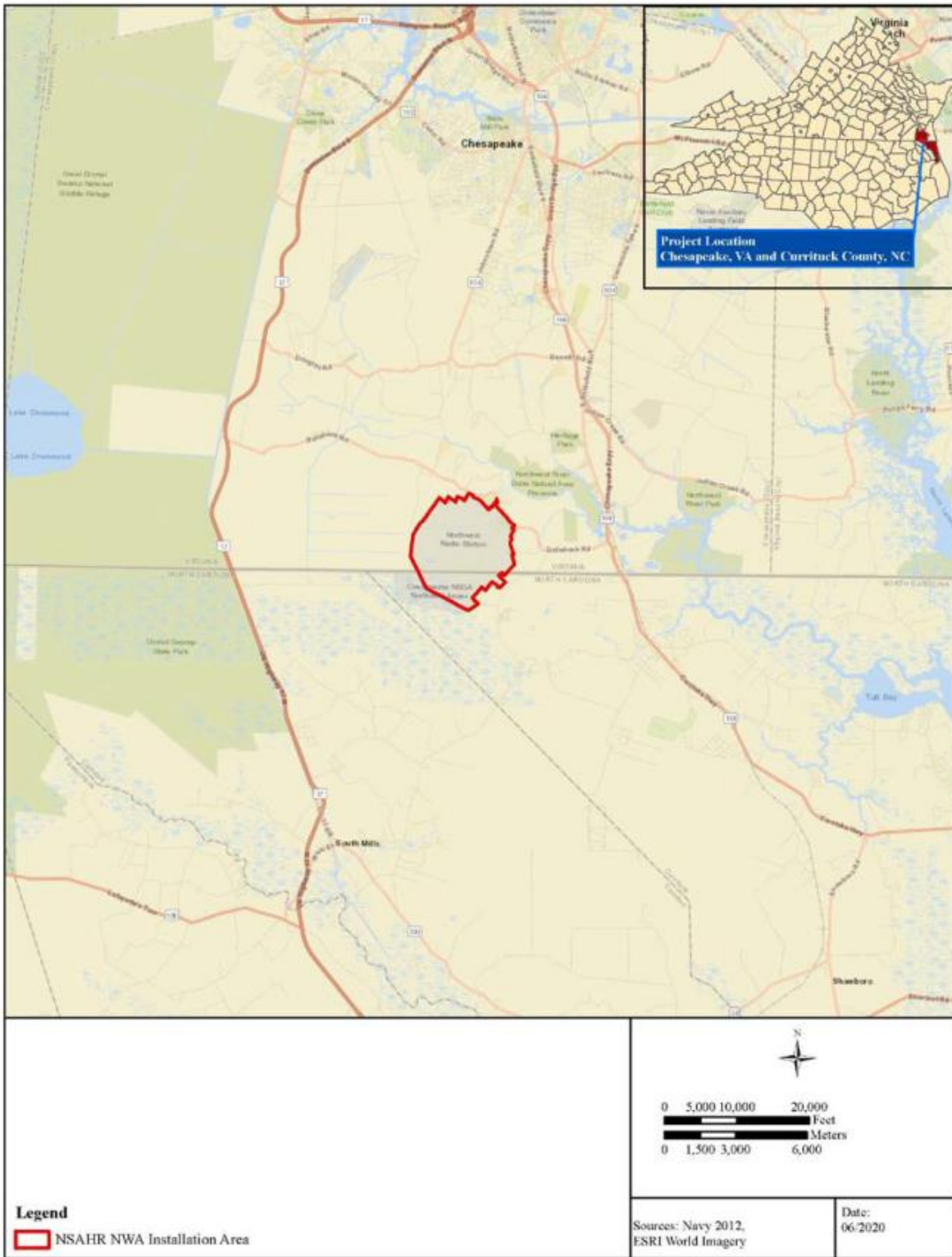


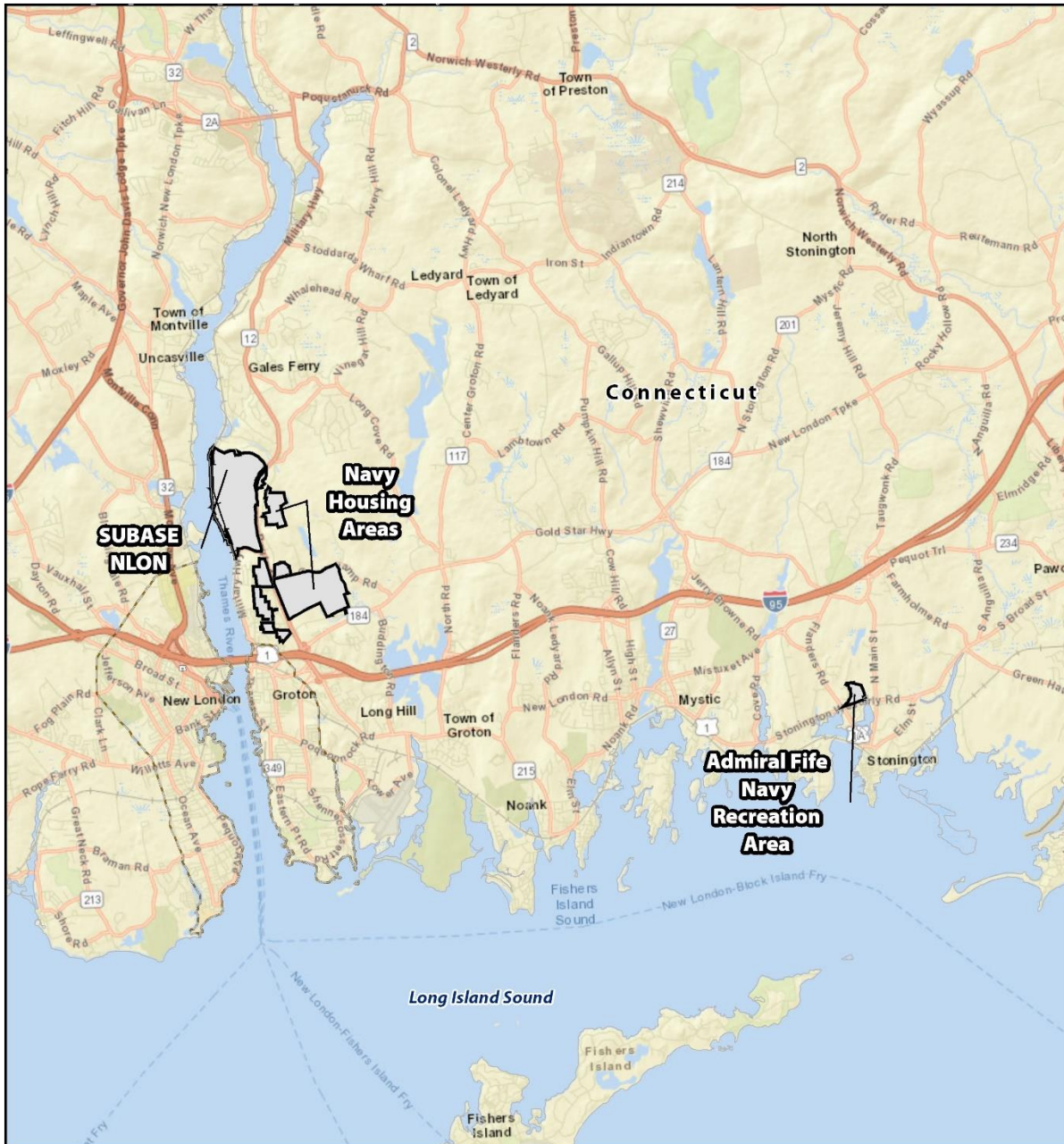
Prepared by: **NASO, NALFF, & NASO DNA INRMP Project Areas**  
 michael.f.wright@navy.mil  
 05/23/2019

Source: Navy GeoReadiness Repository  
 FOR OFFICIAL USE ONLY



NOT TO SCALE





- City Limits
- County Boundary
- Installation Area
- State Boundary



Source: ESRI 2020; NAVFAC MidLant 2021

