



COASTAL RESOURCES DIVISION

ONE CONSERVATION WAY · BRUNSWICK, GA 31520 · 912-264-7218

WALTER RABON  
COMMISSIONER

DOUG HAYMANS  
DIRECTOR

July 23, 2024

Danielle Szimanski  
EA Engineering, Science, and Technology, Inc.  
225 Schilling Circle, Suite 400  
Hunt Valley, MD 21031

**Re: Letter of Permission (LOP) and Revocable License for Research Activities, Naval Submarine Base (NSB) Kings Bay, Crooked River Marshes, Kings Bay, Camden County, Georgia**

Dear Ms. Szimanski:

This letter is in response to your request received June 25, 2024, to perform research activities at selected marshes north of and adjacent to the waterfront restricted area of NSB Kings Bay, Camden County, Georgia.

According to the request, a variety of physical and biological information will be obtained from each of the 6 prioritized marsh zone locations described in the request. The sites will be accessed by boat and data will be collected on foot by a field team. Physical data collected will include relative elevation, accretion rates, and sediment sampling. Elevations will be collected on foot at transects using Real-Time Kinematic (RTK) Global Positioning System (GPS) survey equipment. Accretion rates will be calculated by placing a thin layer of feldspar within three 30cm x 30cm plots. The plots will be established on a chosen transect and marked by polyvinyl chloride (PVC) pipe. The PVC pipes will be left in place for locating during the next sampling event to occur in September 2024 that will include measuring the rate of sediment accretion on top of the feldspar layer. Sediment sampling will be collected with a Russian peat corer to a depth of 50cm below the surface. Biological data will include vegetative and invertebrate sampling by visual field-based habitat assessments. All impacts will be temporary in nature. The project will begin no sooner than 15 days from the date of this letter and be completed within six (6) months from the date of this letter.

The Department authorizes the research activities as described in the attached description and has no objection to the action. Any change in the use, location, dimensions, or configuration of the approved project, without prior notification and approval from this office could result in revocation of this permission and in the required removal of the related structures.

This LOP does not relieve you from obtaining any other required federal, state, or local permits. Tidal water bottoms and marshlands of coastal Georgia are public trust lands controlled by the State, except for such lands where a validated Crown Grant or State Grant exists. If you have any questions, you may contact Paul Tobler at (912) 689-6261.

Sincerely,

A handwritten signature in blue ink, appearing to read 'DH', with a large, sweeping flourish extending to the right.

Doug Haymans

Director

Enclosed:                    Revocable License, Request and Figures

File:                         LOP20240053

STATE OF GEORGIA

REVOCABLE LICENSE FOR THE USE OF TIDAL WATERBOTTOMS

APPLICANT NAME(S): EA Engineering Science and Technology, Inc.  
MAILING ADDRESS: 225 Schilling Circle Suite 400 Hunt Valley, MD 21031  
(Street) (City) (State) (Zip)  
PROJECT ADDRESS/LOCATION: 6222 Charlie Smith Sr Hwy  
COUNTY: Camden WATERWAY: Crooked River, Cumberland Sound  
LOT, BLOCK & SUBDIVISION NAME FROM DEED: NA

The State of Georgia hereby grants you a revocable license not coupled with an interest<sup>1</sup>. This area may now or in the future be utilized by boats employing power drawn nets under the provisions for commercial or sport bait shrimping. In its occupancy and use of the premises, licensee shall not discriminate against any person on the basis of race, gender, color, national origin, religion, age, or disability. This covenant by licensee may be enforced by termination of this license, by injunction, and/or by any other remedy available at law to the Georgia Department of Natural Resources.

Attached hereto and made a part of this license are the project description, drawing(s), and terms and conditions that are the subject of this license. The project approved for this license must be constructed and completed within the specified timeframe noted in the terms and conditions and must be maintained in serviceable condition. Otherwise, action will be initiated to revoke this license and all structures must be removed immediately at the licensee's expense.

STATE OF GEORGIA  
Office of the Governor

By:   
For: Walter Rabon  
Commissioner-DNR

Date: July 23, 2024

Enclosures:

LOP20240053

<sup>1</sup> Tidal water bottoms and marshlands of coastal Georgia are public trust lands owned by the State, except where ownership of such lands is demonstrated through an unbroken chain of title to a valid Crown or State Grant, which explicitly conveys the beds of such tidewaters. The Revocable License authorizes use of lands presumed to be owned by the State of Georgia, and which are under control of the State. This Revocable License is issued with the understanding and condition that it could be rendered invalid should another person demonstrate ownership to such lands pursuant to a valid Crown Grant or State Grant. This Revocable License is issued with the understanding that such lands are subject to the public trust doctrine.

19 June 2024

### **Kings Bay Marsh Research Proposal**

**TO:** Meghan Angelina, Georgia Department of Natural Resources, Coastal Resources Division

**FROM:** Danielle Szimanski, EA Engineering, Science, and Technology, Inc., PBC Project Manager

**SUBJECT:** 2123 – Kings Bay Marsh Assessment; Camden, Georgia  
Contract No. GS00F070CA  
EA Project No. 6391102

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This research proposal submission is for the Kings Bay Marsh data collection activities in support of Prime Contract GS00F070CA, Order #W912HP23F0010 in accordance with the terms and conditions outlined in the executed Master Services Agreement between Marstel-Day, LLC (MD) and EA Engineering, Science, and Technology, Inc., PBC (EA). EA has been contracted to perform Task 4. Evaluation of Current Marsh Habitat.

#### **1. Project Summary**

The Jacksonville District (SAJ) of the U.S. Army Corps of Engineers (USACE) and the U.S. Navy (Navy) completed a Long-Term Assessment of the Dredged Material Management Areas (DMMA) at Naval Submarine Base (NSB) Kings Bay located in Camden County, Georgia in 2021. The report concluded that based on projected dredging requirements, the existing DMMA do not have the capacity for dredged material through 2080, and a change in dredged material management strategy is required to cost-efficiently maintain current operability. Disposing of dredge material at the offshore dredge material disposal site (ODMDS) remains an option at a significantly higher cost and no benefit to the surrounding environment of NSB Kings Bay. The purpose of the proposed data collection activities is part of a larger contract assessing the feasibility of the beneficial reuse of this dredged material on the marshes surrounding Kings Bay.

#### **2. Project Objectives**

**Objective 1:** Conduct field assessments to evaluate the following **physical** parameters: relative marsh elevation/range, accretion rates, and sediment physical characterization.

**Objective 2:** Conduct field assessments to evaluate the following **biological** parameters: stem density, stem height, percent cover, species observations, and observations of invertebrates (e.g., fiddler crabs, periwinkle snails, other snail species).

**Objective 3:** Prepare a report based on the findings of Objectives 1 and 2 to include documentation of methods, software, and analyses conducted throughout the assessment. The

final report should also explain factors that influence the effectiveness of beneficial use placement strategies in achieving ecosystem and habitat function goals and provide recommendations for beneficial use site construction.

## **2.1 Field Work Methods**

The fieldwork tasks proposed for this project have been reviewed and approved by the USACE and MD. The locations of the proposed data collection activities can be seen in Figure 1. No long-term impacts are expected as part of the data collection activities. Short-term impacts may include areas of flattened marsh vegetation where the field staff will collect data and partially filled holes from sediment core sampling. All fieldwork locations and activities can be seen in the attached Figures document. The field team will access these locations by boat and will include the following four field staff, their resumes have been attached to this proposal:

- Danielle Szimanski, Environmental Scientist and Project Manager
- Jill Pietropaolo, Coastal Engineer
- Patrick Edwards, Environmental Scientist
- Kandice Sermon, Environmental Scientist
- Justin Dorian, Environmental Scientist and Boat Operator

### **2.1.1 Physical Data Collection**

Physical data will be collected to evaluate the current conditions of the existing marsh complex. The field team will collect data to ground truth the accuracy of data collected during the desktop assessment. This data will be used to establish a baseline of current conditions for future beneficial use of dredged material project designs and comparisons to past and future marsh conditions. Collecting physical data related to sediment samples is planned to inform the suitability of the marsh support added sediment and water during future beneficial use of dredged material (BUDM) and restoration activities.

Based on the objectives of this project outlined in the Scope of Work (SOW), locations for the fieldwork are prioritized based on historical marsh loss and viability of site consideration for future beneficial use of dredged material greater than 100,000 cubic yards. All sampling will occur over three to five days in July 2024.

#### **2.1.1.1 Relative Marsh and Elevation Range**

Elevation of the current marsh conditions will be collected using a Trimble R10 rover fixed to the top of a 2-meter (6.56 foot) surveyor rod. Spot elevations and horizontal locations of key features will be collected using Real-Time Kinematic (RTK) Global Positioning System (GPS)/Global Navigation Satellite System (GNSS) survey equipment (RTK rover and base station or virtual reference station). The data are referenced to the North American Vertical Datum of 1988 (NAVD88). Elevation data will be collected along transects at each site (Figure 1). Transect locations will also be documented using the RTK for future monitoring.



### **2.1.1.2 Accretion Rates**

A sediment horizon marker using a thin layer of feldspar will be placed to measure accretion at one of the identified priority marsh zones. The plot locations were determined by finding the 2020 mean sea level (MSL) elevation in NAVD88 as shown in Figure 2. The MSL was calculated for 2020 using the National Oceanic and Atmospheric Administration (NOAA) Interagency Sea Level Rise Technical Report (Sweet et al. 2022), which provides the most recent relative sea level rise (RSLR) projections. To adjust the RSLR projections from the baseline year, a vertical adjustment factor of 0.38 feet was applied using the Interagency Task Force's application guide for the updated projections (Collini et al. 2022). The vertical adjustment factor was found using the observation extrapolation record of the Interagency Sea Level Rise Scenario Tool by the National Aeronautics and Space Administration (NASA) at the Fernandina Beach station, which is the station closest to Kings Bay. The MSL elevation location was then mapped using 2018-2019 U.S. Geological Survey Georgia Statewide Lidar (OCM Partners 2024).

The horizon marker will be configured along one of the transects and consist of three 30 x 30-centimeter plots perpendicular to the shoreline at approximately the MSL. Procedures for installing and monitoring accretion rates are derived from Callaway, Cahoon, and Lynch (2013). The procedures are as follows:

1. Select the plot location and place a 30 x 30-centimeter polyvinyl chloride (PVC) quadrat to delineate the boundaries of the plot. Sprinkle feldspar in a thin layer evenly across the entire plot for uniform coverage. Any feldspar that attaches to plants should be shaken gently so that it attaches to the sediment rather than the vegetation.
2. Mark the plot corners with PVC posts or stakes with colored flagging tape so that they may be easily relocated. Mark the plots using the GPS unit.

Monitoring of the markers will be done once in September 2024 due to the Period of Performance limitations. Monitoring procedures are as follows:

1. Select four random core locations within each plot.
2. Insert the cryocorer into the sediment at the random core locations to a depth below the expected location of the feldspar marker. Initiate the flow of liquid nitrogen from the dewar until the soil around the bullet is frozen. Remove the bullet and surrounding frozen soil.
3. Scrape the frozen soil with a knife to easily identify the feldspar marker and the depth from the sediment surface to the top of the feldspar layer around all four sides of the frozen sample using a caliper or ruler.
4. If possible, return the frozen sample to the original sampling location.

Equipment from this data collection that will remain on site includes PVC pipes marking the horizon marker plot and a thin layer of feldspar within the designated plots.





Figure 2. Prioritized Marsh Zone 2



### 2.1.1.3 Sediment Sampling

Sediment samples will be collected for geotechnical analysis to assess the suitability for future restoration and thin-layer placement (TLP). Bulk density and Atterberg Limits will inform how surface and subsurface layers may respond to additional sediment loading from TLP. A grain size analysis will be compared to the most recent dredge sediment characterization to determine the suitability for sediment placement. A total of 12 sediment samples will be collected along transects shown in the figures in Appendix A of this field study plan. Samples will be collected using a Russian peat corer to obtain samples to a depth of 50 centimeters below the surface. Before splitting the samples for analysis, the field team will document the sediment core by photographing the sample and recording notes on the visual observation. The field team will note any significant color changes and consistency of the observed sample. Undisturbed samples will then be extracted from the corer in lengths of 13 – 26 cm to provide adequate volume for analysis. Samples for bulk density will consist of a gallon bag filled approximately ¼ of the way with the sediment sample. Recovery and approximate in situ volume will be noted for laboratory analysis. The field staff will also collect horizontal and vertical coordinates at the surface where each sample is collected. Geotechnical properties will be analyzed for grain size, bulk density, and Atterberg limits and strength. Testing parameters are listed in Table 1 below.

**Table 1. Geotechnical Sample Parameters**

<b>Parameter</b>	<b>Method</b>	<b>Number of Samples</b>
Bulk Density	ASTM D 4531(2008, peat only)	12
Organic Content	ASTM D2937	12
Wet Bulk Density	ASTM D7263	12
Grain Size Analysis – Sieve Analysis	ASTM D6913	12
Grain Size Analysis – Hydrometer (includes specific gravity)	ASTM D7928	12
Atterberg Limits	ASTM D4318	12
Engineering Classification of Soils	ASTM D2487	12

ASTM = American Society for Testing and Materials

### 2.1.2 Biological Data Collection

Biological data will be collected to evaluate the current conditions of the marsh complex through vegetation and invertebrate sampling. These assessments will consist of visual field-based habitat assessments, which will identify vegetation within each project site. Surveys will document the observed dominant plant species and will include general descriptions of the habitat conditions at the time of observation.

### 2.1.2.1 Vegetation Assessment

Based on the preliminary site reconnaissance visit, transects will be established where it is feasible to access the marsh. Along the transects, random 1 square-meter plots will be placed to assess marsh vegetation health by measuring stem density, stem height, and percent cover within each plot.

### 2.1.2.2 Invertebrate Species Observations

Several random 1 square-meter plots will be established to identify invertebrates at each of the locations. The location of each plot will be recorded using an RTK unit. Each species present within the plot will be identified, the number of individuals will be counted, and important habitat features (e.g., burrows) will be recorded. Examples of species that may be encountered include fiddler crabs, ribbed muscles, oysters, and periwinkle snails. Field staff will wear the proper personal protective equipment if handling any of the creatures is necessary for this assessment.

## 3. CONTACT INFORMATION

Danielle Szimanski  
Environmental Scientist and Project Manager  
EA Engineering, Science, and Technology, Inc., PBC  
Phone: (410) 527-2449  
Email: [dszimanski@eaest.com](mailto:dszimanski@eaest.com)

## 4. REFERENCES

- Callaway, J.C., D.R. Cahoon, and J.C. Lynch. 2013. The Surface Elevation Table - Marker Horizon Method for Measuring Wetland Accretion and Elevation Dynamics. *Methods in Biogeochemistry of Wetlands* 10: 901-917.
- Collini, R.C., J. Carter, L. Auermuller, L. Engeman, K. Hintzen, J. Gambill, R.E. Johnson, I. Miller, C. Schafer, and H. Stiller. 2022. *Application Guide for the 2022 Sea Level Rise Technical Report*. National Oceanic and Atmospheric Administration Office for Coastal Management, Mississippi–Alabama Sea Grant Consortium (MASGP-22-028), and Florida Sea Grant (SGEB 88). Available online: <https://oceanservice.noaa.gov/hazards/sealevelrise/noaa-nos-techrpt02-global-regional-SLR-scenarios-US-application-guide.pdf>.
- OCM Partners. 2024. “2018 - 2019 USGS Lidar: GA Statewide.” Available online: <https://www.fisheries.noaa.gov/inport/item/67264>.
- Sweet, W.V., B.D. Hamlington, R.E. Kopp, C.P. Weaver, P.L. Barnard, D. Bekaert, W. Brooks, M. Craghan, G. Dusek, T. Frederikse, and G. Garner. 2022. *Global and regional sea level rise scenarios for the United States: Updated mean projections and extreme water level probabilities along US coastlines*. National Oceanic and Atmospheric Administration.

STATE OF GEORGIA

REQUEST FOR A REVOCABLE LICENSE FOR THE USE OF TIDAL WATERBOTTOMS

APPLICANT NAME(S): EA Engineering Science and Technology, Inc.

MAILING ADDRESS: 225 Schilling Circle Suite 400 Hunt Valley, MD 21031  
(Street) (City) (State) (Zip)

PROJECT ADDRESS/LOCATION: 6222 Charlie Smith Sr Hwy


COUNTY: Camden WATERWAY: East River/ Crooked River, Cumberland Sound

LOT, BLOCK & SUBDIVISION NAME FROM DEED: \_\_\_\_\_

Georgia Department of Natural Resources  
Coastal Resources Division  
One Conservation Way  
Brunswick, Georgia 31520-8687

I am requesting that I be granted a revocable license from the State of Georgia to encroach on the beds of tidewaters, which are state owned property. Attached hereto and made a part of this request is a copy of the plans and description of the project that will be the subject of such a license. I certify that all information submitted is true and correct to the best of my knowledge and understand that willful misrepresentation or falsification is punishable by law.

I understand that if permission from the State is granted, it will be a revocable license and will not constitute a license coupled with an interest. I acknowledge that this revocable license does not resolve any actual or potential disputes regarding the ownership of, or rights in, or over the property upon which the subject project is proposed, and shall not be construed as recognizing or denying any such rights or interests. I acknowledge that such a license would relate only to the property interests of the State and would not obviate the necessity of obtaining any other State license, permit, or authorization required by State law. I recognize that I waive my right of expectation of privacy and I do not have the permission of the State of Georgia to proceed with such project until the Commissioner of DNR or his/her designee has executed a revocable license in accordance with this request.

By:   
Signature of Applicant  
Principal Investigator/Project Manager  
Title, if applicable

Sincerely,

Date: 6/19/24

By: \_\_\_\_\_  
Signature of Applicant  
\_\_\_\_\_  
Title, if applicable

Date: \_\_\_\_\_

Attachments