



## COUNTY COMMISSION

BALDWIN COUNTY  
312 Courthouse Square, Suite 12  
Bay Minette, Alabama 36507  
(251) 580-2564  
(251) 580-2500 Fax  
agary@baldwincountyal.gov  
www.baldwincountyal.gov

ANU GARY  
Records Manager  
MONICA E. TAYLOR  
Assistant Records Manager

February 20, 2013

Dr. John Valentine  
Executive Director  
Dauphin Island Sea Lab  
101 Bienville Boulevard  
Dauphin Island, Alabama 36528

**RE: CIAP Dauphin Island Sea Lab Habitat Restoration Agreement**

Dear Dr. Valentine:

Enclosed is a **fully executed copy** of the *Sub Grantee Agreement*, approved during the February 5, 2013, Baldwin County Commission meeting, between Baldwin County Commission and Dauphin Island Sea Lab, the State Marine Environmental Sciences Consortium and Research Laboratory, for the Dauphin Island Sea Lab to conduct a Coastal Impact Assistance Program (CIAP) Shoreline/Habitat Restoration project in Baldwin County [2009-2010 CIAP Project BC-15 Dauphin Island Sea Lab Habitat Restoration]. This *Agreement* will be effective upon the last date of execution by all parties and will remain in effect through November 30, 2014, unless terminated, pursuant to the provisions herein, for cause as determined by County, or as amended in writing by the parties.

If you have any questions or need further assistance, please do not hesitate to contact me Cal Markert, County Engineer, at (251) 937-0371.

Sincerely,

ANU GARY, Records Manager  
Baldwin County Commission

AG/met Item EG9

cc: Cal Markert  
Joey Nunnally  
Clair Dorough  
Susan Lee  
Ron Cink

ENCLOSURE

REGISTERED  
FEB 19 2013  
BY: MEY

SUB GRANTEE AGREEMENT  
(FOR SHORELINE/HABITAT RESTORATION PROJECT)

THIS AGREEMENT is made and entered into by and between BALDWIN COUNTY COMMISSION, a political subdivision of the State of Alabama, whose address is 312 Courthouse Square, Suite 12, Bay Minette, AL, 36507, hereinafter referred to as the "COUNTY," and Dauphin Island Sea Lab, the State Marine Environmental Sciences Consortium and research laboratory, whose address is 101 Bienville Boulevard, Dauphin Island, AL, 36528, hereinafter referred to as the "CONSULTANT."

WITNESSETH:

WHEREAS, the COUNTY desires to engage the CONSULTANT to conduct a Coastal Impact Assistance Program (CIAP) Shoreline/Habitat Restoration project in Baldwin County. This project will be conducted in accordance with the terms as set forth herein, the Grant Award as attached as Exhibit "A" and the Project Narrative as attached as Exhibit "B", all hereinafter referred to as the "PROJECT"; and

WHEREAS, the CONSULTANT represents that it possesses the requisite skills, knowledge, expertise, resources, and authority to successfully and adequately provide the services in question; and

WHEREAS, the COUNTY and the CONSULTANT have agreed on the type and extent of services to be rendered by the CONSULTANT and the amount and method of compensation to be paid by the COUNTY to the CONSULTANT for services rendered.

NOW THEREFORE, the COUNTY and the CONSULTANT, in consideration of the mutual terms, covenants and conditions set forth herein, agree as follows:

1. RECITALS. The above recitals shall be included as part of the AGREEMENT as if fully set forth.
2. INDEPENDENT CONTRACTOR. The CONSULTANT will perform as an Independent Contractor and not as an employee, representative or agent of the COUNTY.
3. PROFESSIONAL QUALIFICATIONS. For the purpose of this AGREEMENT, the CONSULTANT represents and warrants to the COUNTY that it possesses the professional, technical, and administrative personnel with the specific experience and training necessary to provide the professional services required herein.
4. SERVICES TO BE RENDERED. CONSULTANT is retained by the COUNTY to implement the Shoreline/Habitat Restoration project that is part of the Baldwin County 2009-2010 CIAP plan. The project should be implemented as required in accordance with the terms as set forth herein, the Grant Award as attached as Exhibit "A" and the Project Narrative as attached as Exhibit "B".

5. **PROJECT MANAGER AND NOTICES.** Each party hereby designates the individual set forth below as its respective Project Manager. Project Managers will assist with PROJECT coordination and will be each party's prime contact person. Notices, reports and other correspondence will be sent to the attention of each party's Project Manager by U.S. mail, postage paid, to the parties' addresses as set forth in the introductory paragraph of this AGREEMENT.

- Project Manager for the COUNTY: Joey Nunnally
- Project Manager for the CONSULTANT: Ken Heck

Any changes to the above representatives or addresses must immediately be provided to the other party in writing.

6. **SUBMITTAL OF INVOICES.** Invoices will be submitted by the CONSULTANT to the COUNTY at the following address:

Joey Nunnally  
Baldwin County Highway Department  
P.O. Box 220  
Silverhill, AL 36576

Invoices may be submitted to Baldwin County on a monthly basis with not more than one invoice per month. Invoices shall follow the format provided in Exhibit "D" "Invoice Format Template" and must provide a detailed description of reimbursable expenses. A final invoice must be submitted by June 30, 2014.

7. **COMPENSATION LIMITED:** The compensation to be paid to the CONSULTANT shall be the full compensation for all work performed by CONSULTANT under this Contract. Any and all additional expenditures or expenses of CONSULTANT, not listed in full within this PROJECT, shall not be considered as a part of this AGREEMENT and shall not be demanded by CONSULTANT or paid by COUNTY. Said compensation shall be all inclusive, including without limitation, reimbursement of all cost, incidentals and operating expense associated with those directly engaged in performance of the requested services.

Notwithstanding this provision, work shall not commence unless and until an approved written notice to proceed is provided by the COUNTY.

8. **AGREEMENT PERIOD.** This AGREEMENT will be effective upon the last date of execution by all parties and will remain in effect through November 30, 2014, unless terminated, pursuant to the provisions herein, for cause as determined by COUNTY, or as amended in writing by the Parties.

9. **PROJECT RECORDS AND DOCUMENTS.** The CONSULTANT, upon request, will permit the COUNTY to examine or audit all PROJECT related records and documents during or following completion of the PROJECT. The CONSULTANT will maintain all such records and documents for at least (3) years following completion of the PROJECT.
10. **REPORTING AND FINAL PRODUCTS.** The CONSULTANT shall submit to the COUNTY periodic reports on programmatic and fiscal operations as identified in Exhibit "A". These reports shall be submitted in the form and manner determined by the COUNTY per Exhibit "F" Performance Report. It is expressly agreed that full compliance with programmatic, fiscal and reporting requirements is a condition for the continuation of funds under the AGREEMENT. Failure to submit such reports in a timely manner could result in the termination or suspension of funds. Final reports are due by June 30, 2014. These reports shall include, but not be limited to the following as per the attached Exhibit "F":
- (a) Goals and objectives
  - (b) Accomplishments
  - (c) Schedule and activities undertaken during the period
  - (d) Problems or delays
  - (e) Future Plans
  - (f) Project Deliverables
  - (g) Summary or comments
  - (h) Other information deemed necessary
11. **OWNERSHIP AND MAINTENANCE OF DOCUMENTS, EQUIPMENT AND OTHER MATERIALS.** All documents, including reports, drawings, estimates, programs, manuals, and specifications, and all goods, products, or equipment, including intellectual property and rights thereto, acquired under this AGREEMENT with COUNTY funds or developed in connection with this AGREEMENT will be and will remain the property of the COUNTY. All previously listed documents, equipment and other materials will be housed and maintained by the CONSULTANT during the effective period of this PROJECT. Upon completion of the PROJECT and/or termination of this AGREEMENT, maintenance of PROJECT-related equipment and other materials will become the responsibility of the CONSULTANT. Disposal of such documents, equipment and other materials will be in accordance with U.S. Fish and Wildlife (USFWS) policies and procedures.
12. **GENERAL REPORTS.** The CONSULTANT will provide the COUNTY with any and all reports, models, studies, maps or other documents resulting from the PROJECT upon request, including, but not limited to, documents and deliverables listed in Item 10 and Exhibit "F."
13. **INDEMNIFICATION.** The CONSULTANT agrees to indemnify and hold harmless the COUNTY and all COUNTY officers and employees, from liabilities, damages, losses, and costs, either at law or in equity, including, but not limited to reasonable

attorney's fees and costs and attorney's fees and costs on appeal, as a result of any negligent or reckless act or omission or any intentionally wrongful conduct by the CONSULTANT and other persons employed or utilized by the CONSULTANT in the performance of this AGREEMENT.

14. **TERMINATION.** This AGREEMENT may be terminated by the COUNTY for cause upon ten (10) days written notice to the CONSULTANT. Termination is effective upon the tenth (10<sup>th</sup>) day as counted from the date of the written notice. In the event of termination under this paragraph, the CONSULTANT will be entitled to compensation for all services provided to the COUNTY up to the date of termination on a pro-rated basis and which are within the Grant Award in Exhibit "A", are documented in the Budget Narrative in Exhibit "B", and are allowed under this AGREEMENT.
15. **RELEASE OF INFORMATION.** The CONSULTANT agrees not to initiate any oral or written media interviews or issue press releases on or about this PROJECT without providing advance copies to the COUNTY's Project Manager.
16. **ASSIGNMENT.** Neither party may assign or transfer its rights or obligations under this AGREEMENT without the prior written consent of the other party.
17. **CONFLICT OF INTEREST.** To the COUNTY'S best knowledge and belief, no conflicts of interest exist which have, may have or have had any effect on the sub-grantee award.
18. **POLITICAL ACTIVITY.** The CONSULTANT shall comply with the Hatch Act (5 USC 1501 at seq.) regarding political activity by public employees or those paid with federal funds.
19. **LAW COMPLIANCE.** The CONSULTANT will abide by and assist the COUNTY in satisfying all applicable federal, state and local laws, rules, regulations and guidelines, related to performance under this AGREEMENT. The CONSULTANT shall procure all applicable federal, state and local permits and pay all said fees. The CONSULTANT will not discriminate against any employee or applicant for employment because of age, race, color, religion, sex, handicap, disability, marital status or national origin.
20. **ENVIRONMENTAL STANDARDS.** The CONSULTANT shall comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air)

Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523) and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

21. NATIONAL WILD & SCENIC RIVER SYSTEM. The CONSULTANT shall comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271 et seq.) related to protecting components or potential components of the national wild and scenic river system.
22. NATIONAL HISTORIC PRESERVATION. The CONSULTANT shall comply with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. § 470), EO 11593 (identification and protection of historic properties), and the Archeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.)
23. SUBCONTRACTORS. Nothing in this AGREEMENT will be construed to create, or be implied to create, any relationship between the COUNTY and any subcontractor of the CONSULTANT.
24. THIRD PARTY BENEFICIARIES. Nothing in this AGREEMENT will be construed to benefit any person or entity not a party to this AGREEMENT.
25. ENTIRE AGREEMENT. This AGREEMENT and the attached exhibits listed below represents the entire and integrated AGREEMENT between the CONSULTANT and the COUNTY and supersedes all prior negotiations, representations, or agreements, either written or oral. This AGREEMENT may be amended only by a written instrument signed by the parties.
26. AMENDMENTS. The County may, from time to time, request amendments to various provisions of this AGREEMENT, including any increase or decrease in the amount of funds paid to the CONSULTANT. Such amendments, which are mutually agreed on between the COUNTY and the CONSULTANT, must be incorporated as written amendments to this AGREEMENT and approved by all signatory authorities prior to implementation.
27. DOCUMENTS. The following documents are attached and made a part of this AGREEMENT. In the event of a conflict of contract terminology, priority will first be given to the language in the body of this AGREEMENT, then to Exhibit "A".
  - A. Exhibit "A" –Grant Award from U.S. Fish and Wildlife Service
  - B. Exhibit "B" –Project Narrative
  - C. Exhibit "C" – State of Alabama Contract Provisions
  - D. Exhibit "D" – Invoice Format Template
  - E. Exhibit "E" – Property Management Form
  - F. Exhibit "F" – Performance Report

IN WITNESS WHEREOF, the parties hereto, or their lawful representatives, have executed this AGREEMENT on the day and year set forth next to their signatures below.

**BALDWIN COUNTY, ALABAMA**

By: [Signature] / 2.19.13  
TUCKER DORSEY  
Chairman Date



**STATE OF ALABAMA  
COUNTY OF BALDWIN**

I, Monica E. Taylor, a Notary Public, in and for said County in said State, hereby certify that J. TUCKER DORSEY, whose name as Chairman of the BALDWIN COUNTY COMMISSION, a county commission and political subdivision of the State of Alabama, is signed to the foregoing instrument and who is known to me, acknowledged before me on this day that, being informed of the contents of the instrument, they, as such officers and with full authority, executed the same voluntarily for and as the act of said county commission



Given under my hand and seal this 19th day of February, 2013.

[Signature]

Notary Public

My Commission Expires: My Commission Expires 09/05/2016

**DAUPHIN ISLAND SEA LAB**

By: [Signature] / 2/14/2013  
JOHN VALENTINE  
Executive Director Date

STATE OF ALABAMA )  
COUNTY OF MOBILE )

I, DAVID A ENGLAND, a Notary Public in and for said County, in said State, hereby certify that, John Valentine, Executive Director, an individual whose name as a duly authorized representative for Dauphin Island Sea Lab is signed to the foregoing AGREEMENT, and who is known to me, acknowledged before me on this day that, being

informed of the contents of the AGREEMENT, he, as such officer and with full authority, executed the same voluntarily for and as the act of said entity.

Given under my hand and official seal, this the 14 day of February, 2013.

David A. England

Notary Public

My Commission Expires: 8/17/16

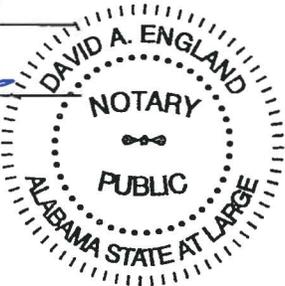


Exhibit "A"



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Washington, D.C. 20240



In Reply Refer To:  
WSFR/CIAP/ F12AF00814

APPROVED AUG 15 2012

Mr. Robert James  
Chairman, Baldwin County Commission  
312 Courthouse Square, Suite 12  
Bay Minette, AL 36507

Dear Mr. James:

This letter constitutes U.S. Fish and Wildlife Service (USFWS) approval of your grant F12AF00814, BC-15 Dauphin Island Sea Lab Habitat Restoration, in the amount of \$200,000.00. This Coastal Impact Assistance Grant is for the purpose of restoring degraded habitats in Baldwin County. This grant is effective from June 01, 2012 for the grant period June 01, 2012, to May 31, 2014. The grant has been approved through Catalog of Federal Domestic Assistance (CFDA) number 15.668, the Coastal Impact Assistance Program (CIAP). This grant is administered through the Wildlife and Sport Fish Restoration Program, CIAP Branch.

**Terms of Acceptance:**

Acceptance of a Federal award from the Department of the Interior (DOI) carries with it the responsibility to be aware of and to comply with the terms and conditions of the award per (<http://www.doi.gov/archive/pam/TermsandConditions.html>). Acceptance is defined as starting work, drawing down funds, or accepting the award via electronic means. Awards are based on the application submitted to and approved by the USFWS. Awards are subject to the terms and conditions incorporated either directly or by reference in the following:

- Program legislation, regulation, and provisions.
- Code of Federal Regulations (CFR) Requirements, including but not limited to:
  - 2 CFR Part 25, Central Contractor Registration and Data Universal Numbering System
  - 2 CFR Part 170, Reporting Sub awards and Executive Compensation
  - 2 CFR Part 1400, Government-wide Debarment and Suspension (Nonprocurement)
  - 2 CFR Part 175, Trafficking Victims Protection Act of 2000
  - 43 CFR 12(A), Administrative and Audit Requirements and Cost Principles for Assistance Programs
  - 2 CFR 1401, Government-wide Requirements for a Drug-Free Workplace

- 43 CFR 18, New Restrictions on Lobbying
- 305 DM 3, Integrity of Scientific and Scholarly Activities
- Assurances-Non-Construction Programs (SF-424B) and/or Assurances-Construction Programs (SF-424D), as applicable
- State and local laws and regulations.

This grant is not subject to the requirements of 43 CFR 12.70(c)(1)(ii). Grant funds may be transferred between projects/activities/budget categories without prior approval from this agency.

Grantees must comply with the Federal Funding Accountability and Transparency Act (FFATA). Additional information can be found at: <http://www.gpo.gov/fdsys/pkg/PLAW-109publ282/pdf/PLAW-109publ282.pdf>.

**Payment Requests:**

Payments are processed through the U.S Department of the Treasury's Automated Standard Application for Payments (ASAP). For information on ASAP, visit the Service's website at: [http://www.fws.gov/fbms/asap\\_index.html](http://www.fws.gov/fbms/asap_index.html). If you have any questions about the reimbursement process and payments, please direct them to: [asapenrollment@fws.gov](mailto:asapenrollment@fws.gov).

**Reporting Requirements:**

Grantee must comply with the Interim Guidance for Financial Status and Performance reporting dated May 15, 2009, found at:

<http://wsfrprograms.fws.gov/subpages/toolkitfiles/intqdrpt.pdf>. Financial and performance reports are required under this award, as follows:

Report	Report Period	Report Due Date
Annual financial & performance reports	June 01, 2012 – June 30, 2013	September 28, 2013
Final financial & performance reports	June 01, 2012 – May 31, 2014	August 31, 2014

**Financial Reports:**

Annual interim SF-425, Federal Financial Reports are required. A final SF-425, Federal Financial Report is required within 90 calendar days of the end date of the grant. This form is on the web at: <http://wsfrprograms.fws.gov/subpages/toolkitfiles/sf425FFR.pdf>.

**Performance Reports:** An annual interim and a final performance report are required under this award. For guidance on financial and performance reporting requirements please refer to: <http://wsfrprograms.fws.gov/subpages/toolkitfiles/intqdrpt.pdf>.

Performance reports must contain: 1) a comparison of actual accomplishments with the goals and objectives of the grant as detailed in the approved scope of work; 2) a description of any significant deviations, including why established goals, objectives, and deadlines were not met, if appropriate; and 3) any other pertinent information relevant to the grant.

**Grant Conditions:**

Cost accounting is required at the grant level.

**SHPO:**

Landscape altering activities may be subject to State Historic Preservation Office review, applicable tribal/native consultation, and National Historic Preservation Act compliance requirements.

If you have questions on this award, specified conditions or reporting requirements, please contact the CIAP Grants Management Specialist Identified below.

<b>The CIAP Grants Management Specialist for this award is:</b>	<b>The Point of Contact for this award is:</b>
Barry U. Ahuruonye (MPA) Coastal Impact Assistance Program U.S. Fish and Wildlife Service, Department of the Interior 4401 N. Fairfax Drive Arlington, VA 22203 703.258.3586 (phone) <a href="mailto:BarryAhuruonye@fws.gov">BarryAhuruonye@fws.gov</a>	Mr. Robert James Chairman, Baldwin County Commission 312 Courthouse Square, Suite 12 Bay Minette, AL 36507 251.937.0264 (phone) <a href="mailto:grants@baldwincountyal.gov">grants@baldwincountyal.gov</a>

Please submit correspondence, amendment requests, financial and performance reports and general inquiries to **FW9\_WSFR\_CIAP@fws.gov**. We appreciate this opportunity to work with you as the implementation of this approved State CIAP Plan project continues.

Sincerely,



Penny Bartnicki  
Chief, Coastal Impact Assistance Program  
(CIAP) Branch

Cc: Alainna Elliott, Baldwin County Commission  
Jim Duffy, USFWS

## Exhibit "B"

### Coastal Impact Assistance Program

#### GRANT PROGRAM NARRATIVE

#### BALDWIN COUNTY, ALABAMA

**Federal Agency Name:**

U.S. Department of the Interior  
Fish and Wildlife Service  
Wildlife and Sport Fish Restoration Program

**Funding Opportunity Title:** Coastal Impact Assistance Program

**Funding Opportunity Number:** FWS-CIAP

**Catalog of Federal Domestic Assistance (CFDA) Number:** 15.668

**Project Identifier:** BC-15

**Project Title:** Dauphin Island Sea Lab Habitat Restoration

**Period of Performance:** June 1, 2012 – May 31, 2014

**Total Federal Funding:** \$200,000.00

#### **1. CONTACT INFORMATION:**

**a. Designated State Agency / Coastal Political Subdivision (CPS)**

Chairman, Baldwin County Commission  
312 Courthouse Square, Suite 12  
Bay Minette, AL 36507  
telephone: (251) 937-0264  
fax: (251) 580-2500  
e-mail: [grants@baldwincountyal.gov](mailto:grants@baldwincountyal.gov)

**b. Recipient Staff Contact**

Joey Nunnally  
Construction Engineer, Baldwin County Highway Department  
PO Box 220  
Silverhill, AL 36576  
Telephone: (251) 972-8533  
Fax: (251) 937-0201  
e-mail: [jnunnally@baldwincountyal.gov](mailto:jnunnally@baldwincountyal.gov)

**c. Application Contact:**

Alainna Elliott  
Grants Coordinator, Baldwin County Commission  
312 Courthouse Square, Suite 15  
Bay Minette, AL 36507  
Telephone: (251)580-1623  
Fax: (251) 580-2536  
e-mail: [aelliott@baldwincountyal.gov](mailto:aelliott@baldwincountyal.gov)

**d. Sub-Grantee Contact:**

Dr. Ken Heck, Jr.  
Professor and Chief Scientist  
Dauphin Island Sea Lab  
101 Bienville Boulevard  
Dauphin Island, AL 36528  
Telephone: (251) 861-2284  
Fax: (251) 861-7540  
e-mail: kheck@disl.org

\*Recipient staff contact has changed from DJ Hart to Joey Nunnally

**2. PROJECT STATEMENT**

**a. Project title;**

Submerged Aquatic Vegetation Restoration and Conservation within Baldwin County, Alabama.  
Principal Investigators: K.L. Heck, Jr. and D. A. Byron, Dauphin Island Sea Lab

**b. The need for the proposed project and project purpose(s);**

Baldwin County is almost completely surrounded by water, with rivers emptying into the Mobile-Tensaw Delta on the northwestern side, bays on the east and west and the Gulf of Mexico to the South. A vital component of this diverse aquatic environment is the submerged aquatic vegetation (SAV) beds found in the shallow waters throughout the County. Healthy SAV habitats play a critical role in Baldwin County's ecological and environmental health as SAV provides food and shelter for the young of a variety of ecologically and commercially important invertebrates, such as brown shrimp and blue crabs, fish such as redfish, speckled trout and largemouth bass and waterfowl, such as the canvasback duck. They also play an active role in maintaining water quality because of their ability to absorb excess nutrients from the water column and to reduced turbidity as their roots and rhizomes hold sediments in place. In addition, healthy SAV decrease wave action, thereby protecting shorelines from erosion.

Submerged aquatic vegetation (SAV) is declining globally and losses in the Gulf of Mexico have occurred in every state, with areal declines ranging from 20-100%. In Alabama coastal waters records are few, but it is clear that tremendous losses have occurred, with more than 50% of the submerged vegetation lost from Mobile Bay since 1981 (USGS 2004). Additionally a recent survey conducted by Barry A. Vittor and Associates for the Mobile Bay National Estuary Program (MB NEP) found a 15% loss of SAV in upper Mobile Bay alone. Many factors, both natural and anthropological, contribute to SAV decline, including the addition of wastewater and excess nutrients to coastal waters, dredging, coastal construction and direct damage caused by boat propellers. Additionally, despite the recognized importance of SAV meadows, we have yet to fully understand the specific suites of factors that sustain successful meadows in different geographical regions nor are we able to predict where losses may occur or to halt losses once they begin.

In the recent past we have learned a great deal about the critical importance of adequate light quantity and quality for ensuring seagrass health and significant progress has been made in developing simple optical models that can predict with good success where SAV will prosper.

Light requirement models have been developed for the temperate seagrass species *Zostera marina* (eelgrass) (CBP 2000), and for the tropical species *Halodule wrightii* (shoalgrass) and *Syringodium filiforme* (manatee grass) in Florida's Indian River Lagoon and Tampa Bay (Kenworthy and Fonseca 1996, Steward et al. 2005). Unfortunately these models are not generally transferrable, owing to local variability in the factors that influence water clarity (Biber et al. 2008); thus a specific northern Gulf model would need to be adapted and calibrated. Producing a model that would allow us to predict the conditions required by healthy SAV meadows is the first of the two objectives of the proposed research.

Once areas determined to be suitable for restoration by applying the optical model we plan to develop have been identified, we will begin restoration of SAV (Objective 2 of the proposed research). Due to the intense nature of restoration efforts, we have proposed to focus on the Mobile Delta area and tape grass, *Vallisneria americana* as we already have information regarding *Halodule wrightii* restoration (K. Heck, unpublished data; J. Cebrian, personal communication). Additionally, based on the Barry A. Vittor (2009) report for the Mobile Bay NEP, *V. americana* has experienced great losses between 2002 and 2009 from unknown causes.

Past restoration projects have had limited success because little attention was given to site selection, with the primary requirement being whether or not the site had previously supported SAV. By using a second criterion of adequate light quantity and quality, we hope to increase the probability of successful restoration. Additionally, we will examine the role of herbivores in restoration success as Moore et al. (2010) found that herbivory played a larger role in restoration success than light availability. A previous project conducted in Mobile Bay in the late 1980s, found high restoration success using *V. americana* transplants in shallow water (Stout and Heck, 1990); however, transplants are highly destructive to the parent bed and can be labor intensive to plant. An alternative restoration technique is to use seeds in areas deemed appropriate by the optical model, similar to what has been done with *V. americana* in Chesapeake Bay (Moore et al. 2010). *Vallisneria americana* is known to produce copious amounts of seeds, between 150 to 500 per seed pod (McFarland, 2006), which can easily be harvested and transported to areas that have experienced SAV loss and have been determined by the optical model to be suitable for restoration.

We believe that developing simple optical models to improve understanding of the conditions required to sustain healthy SAV meadows, and testing and developing alternative seagrass restoration techniques (e.g. the use of seeds instead of transplants) will aid in conservation and restoration efforts of this economically valuable habitat within the Northern Gulf of Mexico. Protecting the health of Baldwin County's SAV beds and restoring areas where losses have occurred will benefit the County through increased ecosystem services provided by SAV habitat, such as enhanced fisheries output, increased water quality and decreased shoreline erosion by the lessening of wave action and stabilizing sediments.

***c. Discrete, quantifiable, and verifiable objectives to be accomplished during a specific time period.***

**The following objectives will be accomplished during year 1 of funding:**

1) Develop simple, first generation optical models to allow improved understanding of the conditions required to support healthy (i.e., vegetatively and reproductively productive) submerged aquatic vegetation meadows, specifically *Vallisneria americana* in the Mobile Delta and *Halodule wrightii* in the lower Perdido watershed

- Use these models to identify areas where *V. americana* and *H. wrightii* can be successfully restored;

**Using the information gathered during year 1, the following objective will be accomplished during year 2 of funding.**

2) Determine best suited restoration techniques and restoration goals for *Vallisneria americana* in the Mobile Delta

–Describe additional ecosystem services based criteria to determine restoration success beyond plant coverage.

***d. Expected results or benefits from accomplishing the objectives;***

1) Development of an optical model for SAV in Baldwin County which would allow for additional restoration sites to be identified.

2) Initial planting of 12 m<sup>2</sup> of SAV habitat per restoration location; however, as plants continue to grow and expand, areal cover will increase.

***e. The approach to be used in meeting the objectives, including specific procedures, schedules and timelines, key personnel, and cooperators;***

Objective 1:

During the first year, we will carry out a sampling effort to develop a simple optical model in up to 10 locations that are known, based on previous work, to have supported SAV in Mobile Bay and Perdido Bay for anywhere from 5 to 15 years (Heck et al. 1996; Heck and Byron 2006; Byron and Heck 2006; MBNEP 2004; MBNEP 2009). Locations will include *Vallisneria americana* beds just south of the causeway in the Mobile Delta and Grand Bay and *Halodule wrightii* beds in Little Lagoon and in the Perdido Bay system.

Survey of these sites will occur approximately every two weeks during the main growing season (April-October) and monthly from November to March, at the deepest margins of the beds (as determined by in-water observations, and as corrected for tidal stage). At each location photosynthetically active radiation (PAR) measurements will be collected just below the water's surface, at mid-depth and at the bottom, using a Li-Cor 4 pi sensor. These values will be used to calculate the light attenuation through the water column. We will also collect triplicate water samples, mid water column, for measurement of chlorophyll *a*, turbidity, and colored dissolved organic matter (CDOM).

Light attenuation will be expressed as  $k_{PAR}$ , the water-column diffuse light attenuation coefficient, and calculated using the Lambert-Beer law:  $PAR_z = PAR_0 \exp^{-k_{PAR}z}$ , where  $PAR_0$  and  $PAR_z$  are PAR measured just below the water surface and at depth  $z$ , respectively.  $k_{PAR}$  can then be calculated as the slope of a regression of  $\ln(PAR_z/PAR_0)$  against  $z$ . Calculation of  $k_{PAR}$  can then be used as the dependent variable in a regression analysis that includes as independent variables the major factors that influence water clarity (chlorophyll *a*, turbidity, and CDOM) (CBP 2000, Steward et al. 2005, Biber et al. 2008).

Based on the water quality parameters listed above, we will use multiple regression analysis to develop a general model that can be used to determine where seagrass can exist, and also predict where SAV restoration would be most successful in areas where it does not currently exist.

In addition, to better understand how short-term variation in light regime might influence conclusions compared to those drawn from the discrete sampling efforts, we will, at various times during the sampling schedule, continuously monitor light levels for two week periods at the deepest portion of the SAV bed at each of the sampling locations. This will be done using 4 pi Li-Cor sensors attached to data recorders placed in waterproof housings. The sensors will be covered with plastic wrap that will be changed every week so as to reduce the effects of fouling on recorded light levels. Due to equipment limitations, continuous sampling at all sites simultaneously will not be possible; however, to limit large scale temporal variability we will sample each site during the same season.

While light quality (i.e, the various wavelengths reaching the SAV) can also be important (Gallegos 2005), it is more difficult to measure than light quantity and we believe that the proposed work is an appropriate first step in developing a simple model to explain seagrass distribution.

We will also collect triplicate 15.2 cm inner diameter cores at each of the SAV sampling locations. From these cores we will estimate shoot, flower and fruit density, and above- and below ground biomass. These dependent variables will also be used in the multiple regression analysis to determine how much explanatory power the three independent variables described above (chlorophyll *a*, turbidity and CDOM) have with respect to plant abundance measurements.

#### Objective 2:

To address our second objective, we will compare restoration techniques using seedlings reared in the lab for transplant versus broadcasting seeds from seed pods collected during the reproductive season.

In Year 1 of the project, during the height of reproductive output for *V. americana*, we will collect seed pods and bring them to the Dauphin Island Sea Lab. Once seed pods have fully matured, the seeds will be removed from the pods and planted in small planting pots and placed in shallow freshwater pools covered with shade cloth. We will also store some seed pods in amber bottles at 4°C, in water collected from the Delta, for use during the restoration effort the following year (based on Moore et al. 2010).

During year 2, at the beginning of the growing season, once water temperatures have reached 20°C (based on Moore et al. 2010), we will examine the restoration success of planting nursery reared seedlings (approximately 1 year old) compared with broadcasting seeds taken from seed pods. Sites will be selected using the following criteria:

- 1) the area previously supported SAV

2) water quality parameters are sufficient for successful SAV growth as determined by the optical model developed during Year 1.

Treatment plots will be set up in a blocked design with each block containing one of each of the four following restoration treatments: seeds, 1 year old seedlings, caged seeds, and caged 1 year old seedlings. Caged treatments will examine the role of herbivores in limiting restoration success. Each treatment plot will be approximately 1m x 1m. A nearby *V. americana* bed will be sampled to provide an ecosystem services reference for the restored area.

One month after planting, germination of the seeds and survival of the seedlings will be estimated, with additional seeds and seedlings to be planted if germination and survival is low. Afterward, we will visit each plot monthly until November and conduct plant counts for survival and growth. Sampling will resume in March when plants resume growth. During each monitoring event, water quality (chlorophyll a, turbidity, CDOM, salinity, temperature, PAR) and sediment characteristics will be recorded using standard techniques.

***f. Description of the site activity, so the FWS can make an assessment of compliance needs relative to applicable laws and executive orders, i.e. the Endangered Species Act (ESA), Section 404 of the Clean Water Act, and Section 106 of the National Historic Preservation Act (NHPA), among others;***

See above section e. for detailed site activities

***g. A project location; including the closest city or town, with GPS Coordinates (in minutes, degrees, seconds);***

The following are general locations where data will be collected for calculation and calibration of a water quality optical model that will be used to predict locations where restoration activities will be most successful.

- Lower Perdido Watershed; Orange Beach;  
30° 17' 45.7944"N, 87° 31' 11.2584"W
- Mobile Delta; Mobile; 30° 40' 4.9362"N, 87° 58' 35.241"W

The following locations are based on current information about where SAV restoration is needed based on SAV losses in the area but is not based on whether these areas are suitable for restoration. Before restoration activities begin, however, we will use the optical model produced during year 1 to verify that these locations are suitable for the growth of SAV.

- Grand Bay; Mobile; center coordinates 30 45' 33.8394"N, 88 0' 12.6"W
- Sand bar near Goat Island, across from Battleship Park; Mobile;  
30° 40' 41.8758"N, 88° 0' 25.3938"W
- Western Apalachee River Delta Sand Bar; Mobile;  
30° 40' 12.1794"N, 87° 58' 35.3274"W

***h. Authorized Use(s). Identify the authorized use(s) of each project by number (See Section I). Provide an explanation of how the project is consistent with the identified***

**authorized use(s). Include how the project directly or, as appropriate, indirectly benefits the natural coastal environment. You may include more than one authorized use in an application.**

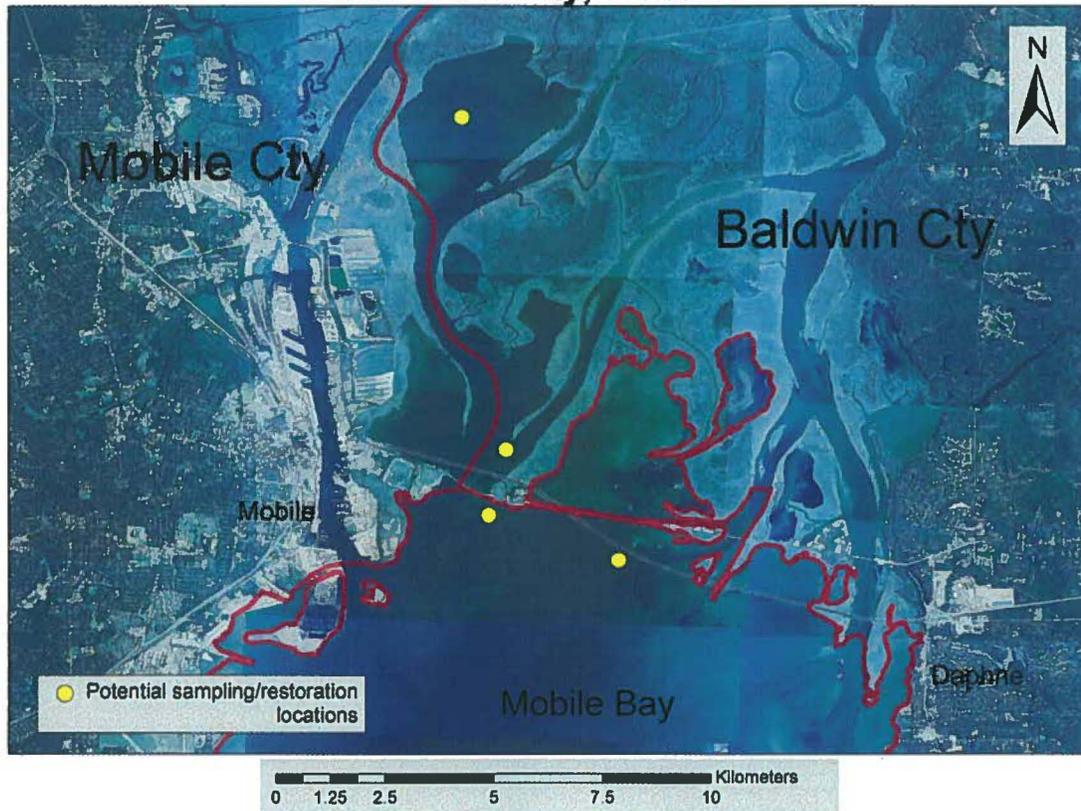
This project meets the criteria set forth in Authorized Use #1, projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands.

Justification: The Shoreline/Habitat Restoration initiative is consistent with CIAP Authorized Use #1 because it provides a means of helping to protect and restore the beds of submerged aquatic vegetation and shorelines in parts of Baldwin County.

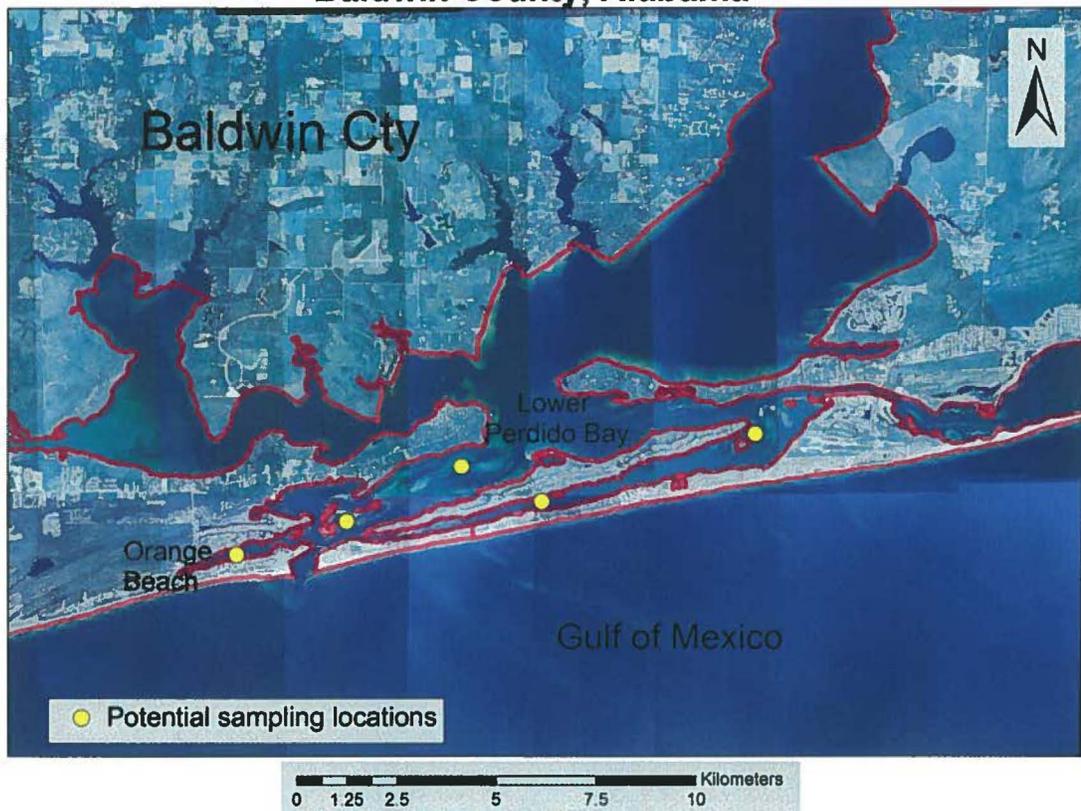
**3. Maps/Drawing/Photographs: Clearly marked maps, illustrations, or photographs of the overall proposed project (see below)**

**a. At least one map to show the full extent of the project area in its current condition;**

### Overall Study Area, Mobile Bay Delta Baldwin County, Alabama



## Overall Study Area, Lower Perdido Bay, Baldwin County, Alabama



### ***b. The project footprint;***

We do not have an exact project footprint for the restoration work at this time. Site surveys will occur before restoration activities begin, and a footprint will be determined at that time. Based on the experimental design, we hypothesize that the footprint would be no smaller than  $1\text{m}^2$  and no larger than  $100\text{m}^2$ .

### ***c. The specific location of the project features***

We do not have an exact project location for the restoration work at this time. However, based on the data we have to date, we can provide general locations where SAV losses have occurred and where restoration is needed and may be successful (see section g. above).

### ***4. Describe other Federal and non-Federal programs and projects that are closely related to the proposed project.***

This project will rely on prior studies by the Dauphin Island Sea Lab, funded by the Alabama Department of Conservation and Natural Resources, States Lands Division, Coastal Section, that examined the feasibility of SAV restoration via the use of seeds. Although this work is not completed, preliminary results indicate that there is not a large and consistent seed reserve for *Halodule wrightii* restoration; however, harvesting *Vallisneria americana* seeds is relatively simple and can be easily conducted. Additionally, we have been able to grow small seedlings in

the laboratory from seed and intend to determine if planting seedlings versus broadcasting ungerminated seeds will result in a higher probability of success for *Vallisneria* restoration.

**5. Changes to the approved CIAP State Plan**

**a. Identify any project/technical changes** – Recipient staff contact has changed from DJ Hart to Joey Nunnally.

**b. Identify any financial changes** – there are no financial changes.

**c. Show compliance with the 23% limit (see funding restrictions for additional information)** - this project meets Authorized Use #1 and therefore the 23% limit does not apply.

**d. Assurance Statement:** *The proposed application complies with the original intent of the project as stated in the approved Plan. The description is consistent with the original project description to the extent it remains recognizable. The project is still covered by the Governor's Certification of Public Participation.*

## Literature Cited

- Barry A. Vittor and Associates, Inc. 2004. Mapping of Submerged Aquatic Vegetation in Mobile Bay and Adjacent Waters of Coastal Alabama in 2002. Prepared for the Mobile Bay National Estuary Program, Mobile, AL. 63p.
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- Biber et al. 2008. Calibration of a Bio-optical model in the North River, North Carolina (Albemarle-Pamlico) Sound: a tool to evaluate water quality impact on seagrasses. *Est Coasts* 31: 177-191.
- Byron, D.A. and K.L. Heck, Jr. 2006. Hurricane effects on seagrasses along Alabama's Gulf coast. *Estuaries and Coasts*, 29: 939-942.
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- Gallegos, C.L. 2005. Optical water quality of a blackwater river estuary: the lower St. Johns River, Florida, USA. *Est Coast Shel Sci* 63: 57-72.
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- McFarland, D. 2006. Reproductive Ecology of *Vallisneria americana* Michaux. SAV Technical Notes Collection (ERDC/TN SAV-06-4). Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- Moore, K.A., E.C. Shields, and J.C. Jarvis. 2010. The Role of Habitat and Herbivory on the Restoration of Tidal Freshwater Submerged Aquatic Vegetation Populations. *Restoration Ecology*, 18: 596-604.
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- Stout, J. P. and K.L. Heck. 1990. Reintroduction of oligohaline grassbeds Mobile Bay, AL. Pp. 180-199 in F.J. Webb (ed.) Proc. 16<sup>th</sup> Ann Confer. Creation and Restor. Of Wetlands, Hillsborough Comm. Coll. Tampa, FL. 229p.
- USGS. 2004. Seagrass Habitat in the Northern Gulf of Mexico: Degradation, Conservation, and Restoration of a Valuable Resource. Publication no. 855-R-04-001. 28p.

## **EXHIBIT "C" - State of Alabama Contract Provisions**

### **FUNDS SHALL NOT BE CONSTITUTED AS A DEBT**

It is agreed that the terms and commitments contained herein shall not be constituted as a Debt of the State of Alabama in violation of Article 11, Section 213 of the Constitution of Alabama, 1901, as amended by Amendment Number 26. It is further agreed that if any Provision of this AGREEMENT shall contravene any statute or Constitutional provision or Amendment, either now in effect or which may, during the course of this AGREEMENT, be Enacted, then the conflicting provision in the contract shall be deemed null and void.

### **ALTERNATE DISPUTE RESOLUTION**

For any and all disputes arising under the terms of this contract, the parties hereto agree, In compliance with the recommendations of the Governor and Attorney General, when Considering settlement of such disputes, to utilize appropriate forms of non-binding Alternative dispute resolution including, but not limited to, mediation by and through the Attorney General's Office of Administrative hearings or where appropriate, private mediators.

### **TERMINATION DUE TO INSUFFICIENT FUNDS**

- a. If the AGREEMENT term is to exceed more than one fiscal year, then said AGREEMENT is subject to termination in the event that funds should not be appropriated for the continued payment of the AGREEMENT in subsequent fiscal years.
- b. In the event of proration of the fund from which payment under this AGREEMENT is to be made, the AGREEMENT will be subject to termination.

# Exhibit "D"

Invoice Number

Baldwin County Commission Grant  
Attention:  
Street Address  
City, State Zip Code

Baldwin County  
Award Name  
Award Number  
Plan Number

Name of Grantee  
Street Address  
City, State Zip Code

Invoice Title  
Invoice Billing Period  
Invoice Date

## Expenses

### Salary/ Fringe:

<u>Category</u>	<u>Rate</u>	<u>Hours</u>	<u>Wages</u>	<u>Fringe Rate</u>	<u>Fringe</u>	<u>Total Wages</u>
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## Other Expenses

## Balance Due

Authorized Purchasing Agent  
Street Address  
City, State Zip Code  
Telephone Number  
Email Address  
Fax Number

## Notations

Authorized Purchasing Agent's Signature





Exhibit "F"

**Baldwin County, AL- COASTAL IMPACT ASSISTANCE  
PROGRAM  
PERFORMANCE REPORT**

*Text boxes will expand to accommodate any length of comments.*

<b>Period covered by this report:</b>		<b>Annual or Final report?</b>	<b>(Report #)</b>
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**1. Project Information:**

<b>Name of Organization</b>	Baldwin County Commission
<b>CIAP Grant Award Number</b>	F12AF70269-0001-A17B
<b>Project Number and Name</b>	BC-9 Continuous and Real-time Recording Stations of Meteorological and Hydrographic Parameters in Coastal Alabama
<b>Grant Award Date</b>	September 20, 2010

**2. Project Point of Contact – person completing this form (*please note if point of contact has changed*).**

<b>Name</b>	Joey Nunnally <b>**project manager has changed from the application</b>
<b>Title</b>	Construction Engineer
<b>Complete Mailing Address</b>	Baldwin County Highway Department PO Box 220 Silverhill, AL 36576
<b>Office Phone</b>	251-937-8533
<b>Cell Phone</b>	
<b>Fax</b>	251-937-0201
<b>E-mail</b>	jnunnally@baldwincountyal.gov

**3. Goals and Objectives:**

<b>3a. State the goal of your CIAP Project.</b>
To create an east-west transect of continuous and real-time weather and water quality recording stations along southern coastal Alabama.

**3b. State the objectives of your project.**

To purchase, install, and implement hydrographic dataloggers and meteorological instrumentation in Perdido Bay and Bon Secour Bay.

**4. Performance Report:** *Please refer to your approved Grant Award for reference and assistance.*

**4a. Accomplishments:** *Describe actual accomplishments with the goals and objectives established for the reporting period, the results/findings, or both.*

**4b. Schedule:** *Discuss your progress on the timeline established in the Grant Award. If established goals and objectives were not met, explain reasons why. Also describe any favorable developments that may enable achieving time schedules and objectives sooner or at less cost than anticipated, or producing more beneficial results than originally planned.*

**4c. Other information:** *Discuss any other important information including, when appropriate, analysis and explanation of any cost overruns or high unit costs compared to the benefit received to reach an objective.*

**4d. Problems or Delays:** *Explain any problems, delays, or adverse conditions that may materially impair the ability to meet the objective of the award. This disclosure must include a statement of the action taken, or contemplated, and any assistance needed to resolve the situation.*

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**5. Future Plans:**

***For interim reports, discuss plans for the future – i.e. how will this project be sustained beyond CIAP funding? For final reports, discuss lessons learned from this project.***

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**6. Project Deliverables:**

***List here and attach to this report all deliverables due during this reporting period such as digital photos, permits, findings, maps, media coverage, brochures, plans, reports and other work products.***

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**7. Summary or comments:**

***Optional – Provide any additional comments or summary on this CIAP project.***

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