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**PIRATE HARBOR ENTRANCE CHANNEL DREDGING  
MITIGATION PLAN IMPLEMENTATION SCOPE OF SERVICES  
CEC FILE NO. 18.132  
WORK ORDER AMENDMENT  
July 31, 2020**

This work order amendment is to add scope and fees to the original contract for CEC to conduct the first annual mitigation plan monitoring and reporting as required by the Project permits.

**SCOPE OF WORK**

**TASK 7: FIRST ANNUAL MONITORING**

CEC shall conduct all of the seagrass monitoring in accordance with the protocols and schedule stipulated in the Permits and approved Mitigation and Monitoring Plan for seagrass mapping as follows.

**Seagrass Mitigation Site**

*Survey Protocols*

Collect qualitative and quantitative data at the mitigation sites and control sites. The qualitative assessment shall visually assess species composition, aboveground biomass, epiphyte coverage, and overall condition of the control and mitigation sites. Quantitative surveys of the mitigation site and control site shall be made by randomly placing a 0.5 m<sup>2</sup> quadrat within each site and determining the percent cover of each seagrass species present and a combined percent coverage of all species. For each quadrat a score based on the percent cover of each species individually and all species combined (Composite) shall be assigned according to the Braun-Blanquet abundance (BB) scale.

*Reporting*

The Monitoring Reports shall include the following:

- Date of the survey
- Color photographs taken from fixed reference points
- Brief description of the extent of work completed since the previous report. Indicate on copies of the permit drawings those areas where work has been completed
- Combined percent aerial coverage of seagrass (total and by species)
- Condition of sediment fill
- Mapping of any new prop scars or blowouts
- Plan for compliance with the permit to demonstrate any necessary corrective action to non-compliance or limited success with the mitigation site.

*Success Criteria*

To determine the success of the mitigation plan, the mitigation site will be compared to the surrounding areas of seagrass. A sufficient number of 0.5 m<sup>2</sup> quadrats to sample 5% of the mitigation site and control site will be assessed each year for percent cover and density (percent and BB scores).

The seagrass mitigation plan will be deemed successful when all of the following criteria are met:

- Mitigation site shall achieve percent aerial coverage of seagrasses equal to 80% of the control site
- Mitigation site shows an insignificant level of sediment subsidence
- Mitigation site has achieved viable, sustainable ecological and hydrological functions defined as the unassisted persistence of the required acreage of seagrass coverage for a two-year period.

### **Impact Site**

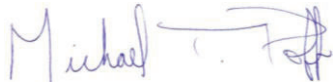
Map seagrasses within the 50-foot buffer zone (north and south of the dredge cut) using sub-meter accurate GPS. Conduct a qualitative assessment by visually assessing species composition, aboveground biomass, epiphyte coverage, and overall condition of seagrasses in the buffer zone. Quantitative sampling of seagrass percent cover by species and collectively shall be done using randomly placed 0.5 m<sup>2</sup> quadrats in the buffer zone at 100-foot stations. The data collected shall be used to calculate BB cover-abundance scores for each seagrass patch located. Prepare and submit monitoring report following the above reporting protocols as they pertain to the Impact Site.

### **FEES**

The scope of services will be provided for \$13,720 on a fixed fee basis. Payment for services shall be made on a monthly basis on a percent complete basis. The fee for this task shall not be exceeded.

Please contact us if you have any questions. I can be reached at 239-643-2324 ext. 126 or by email at [mpoff@cecifl.com](mailto:mpoff@cecifl.com).

Sincerely,  
COASTAL ENGINEERING CONSULTANTS, INC.



Michael T. Poff, P.E.  
President