

March 19, 2010

Debra Laisure, P.E.  
Manager of Engineering Support  
and  
Nicole Martin  
Environmental Specialist

Submerged Lands and Environmental Resource Program  
Florida Department of Environmental Protection  
3319 Maguire Blvd., Suite 232  
Orlando, FL 32803-3767

Re: Lake County Water Authority – Lake Beauclair Aquatic Enhancement  
Environmental Resource Permit Application No. 35-0297532-001  
BCI Project No. 12-18116.16

Dear Ms. Laisure and Ms. Martin:

We are in receipt of your letter dated February 18, 2010, regarding the above-referenced Environmental Resource Permit (ERP) application. In response to your Request for Additional Information (RAI), BCI Engineers and Scientists, Inc. is pleased to provide the responses below in support of the requested permit approval. The project plan set has been updated based on your questions addressed below, and is enclosed to aid in your review of the project.

**Wetland/Surface Water Impact (Chapter 62-330 or 62-343, F.A.C.)**

- 1. An applicant shall provide reasonable assurance that the secondary impacts from construction, and intended or reasonably expected uses of a proposed system will not cause violations of water quality standards or adverse impacts to the functions of wetlands or other surface waters as described in s.12.2.2. A.H. (SJRWMD). In this case, it is presumed that the proposed dredging is likely to impact at least two (2) active bald eagle (*Haliaeetus leucocephalus*) nests, listed as threatened species. Demonstrate that the project will not result in adverse secondary impacts to the bald eagles and/or their nests or provide a mitigation plan that will offset these impacts.**

**The Department recommends that the applicant work with the Florida Fish and Wildlife Conservation Commission (FWCC) and discuss with them the dredging timelines and operation provided in your January 12, 2010 response to the Department's October 22, 2009 RAI. Please note that the Department has already forwarded the application and a portion of your January response to FWCC.**

**You may send your correspondence directly to FFWCC at the noted address, however you must copy the Department on ALL information sent to FFWCC. Note that the FFWCC serve only as commenting agencies in our review. As such, their acceptance of a proposed project, mitigation or management plan does not ensure acceptance by the Department and the approval by FFWCC is non-binding upon the Department.**

**Imperiled Species Management Section  
620 South Meridian Street MS-6A  
Tallahassee, FL 32399-1600  
(850) 922-4330; FAX (850) 922-4338**

The current FFWCC Bald Eagle Management Plan is designed to help maintain a stable or increasing population of eagles following delisting, given recovery of this species in Florida (Bald Eagle Management Plan, FFWCC 2008). As noted in the January 2010 RAI response, three (3) nests are located in proximity to proposed dredging and other project activities. These nests are identified as nests LA030, LA153, and LA135, located approximately 200 feet, 1200 feet, and 900 feet from the project area, respectively. The current Management Plan and regulatory requirements for nest protection address activities proposed within 660 feet of a nest. Known nests in the vicinity of the project are located greater than 660 feet from proposed activities with the exception of nest LA030. None of the nearby nests are anticipated to incur impacts as a result of the project, based on distance from activity and proposed protection measures noted below, consistent with current regulatory guidance for minimizing and avoiding disturbance to nesting eagles.

No FFWCC permit is necessary for certain approved activities documented in the FFWCC Bald Eagle Management Plan, including temporary activities conducted outside the nesting season. As discussed in the January 2010 RAI response, the project schedule and work plan has specifically been modified to initiate and complete proposed dredging within the 660-foot protection zone of nest LA030 prior to the beginning of the nesting season (October 1st). The proposed dredging work within this zone is expected to improve aquatic habitat and is considered a temporary activity, as no permanent structure will be installed within the protection zones.

In accordance with Department recommendations, BCI contacted Ulgonia Kirkpatrick via telephone at the FFWCC Habitat and Species Conservation Division regarding proposed measures. Ms. Kirkpatrick agreed the proposed activities fall within the temporary activities to be conducted outside the nesting season not requiring further regulatory approval from FFWCC. During our telephone conversation, we discussed the possibility of eagles returning to nesting territory earlier in the year than the documented October 1<sup>st</sup> date marking the beginning of nesting season. As an extra precaution to avoid potential secondary disturbance to eagles, the applicant has proposed initiation of monitoring pursuant to current US Fish and Wildlife Service guidelines as recommended by FFWCC upon implementation of the project

(early September). A summary memorandum of this information was provided to Ms. Kirkpatrick and copied to DEP on March 1, 2010.

Ms. Kirkpatrick provided email correspondence to Nicole Martin and me on March 18, 2010, confirming activities as proposed fall within the temporary activities category documented in current regulations, and do not require a permit. Ms. Kirkpatrick has also referenced the website indicated below if further clarification is needed of permitting requirements and activities that do not require a permit:

[http://myfwc.com/WILDLIFEHABITATS/EaglePermitting\\_Guidance.htm](http://myfwc.com/WILDLIFEHABITATS/EaglePermitting_Guidance.htm)

**Stormwater Management (Chapters 62-330, 62-343, 40C-4, 40C-40, 40C-41, and 40C-42 F.A.C.)**

- 2. The responses to the engineering questions in the October 2009 RAI were not signed, dated, and sealed by a professional engineer. The responses contain engineering evaluations of the proposed project. Please provide a signed, dated, and sealed copy of the responses to the engineering questions in the October 2009 RAI and to the engineering questions in this RAI.**

The engineer's certification for the January 2010 RAI response is enclosed as requested. The requested engineer's certification has been included for this response as well.

- 3. Please direct the reviewer to the sheet of engineering drawings that shows the construction entrance locations referenced in the response to item 4 of the previous RAI.**

Construction entrance locations are each labeled as "Access Point" on Sheet 3 of the plan set, and typical design details for appropriate sediment tracking and prevention measures are depicted on Sheet 28 of the plan set. It should be noted that the construction access location at Trimble Park was erroneously positioned on the plan set provided in the January 2010 RAI response. This error has been corrected, and a revised copy of the plan set is included as **Appendix A** of this submittal. Please note that no additional changes have been made to the plan set, and plan set revision dates are noted on the title page.

- 4. Will the polymers and alum discussed in the response to the previous RAI be added to the dredged materials as it discharges to cell F/G, or will it be added to the settling basin in the northeast corner of disposal cell G? How will pH and alkalinity be monitored and controlled? If these chemicals will be added to the settling basin, will sludge have to be removed? If so, where will the sludge be disposed?**

The polymers discussed in the response to the previous RAI are typically modified polyacrylamides, or long-chain polymer flocculants. These polymers promote the flocculation (agglomeration) of suspended particles in liquids causing the flocculated particles to ‘drop’ out of suspension. Alum, more specifically, hydrated aluminum sulfate, is known to significantly reduce the concentrations of particulate nitrogen, orthophosphorus, dissolved organic phosphorus, particulate phosphorus, total phosphorus, turbidity, and total suspended solids.

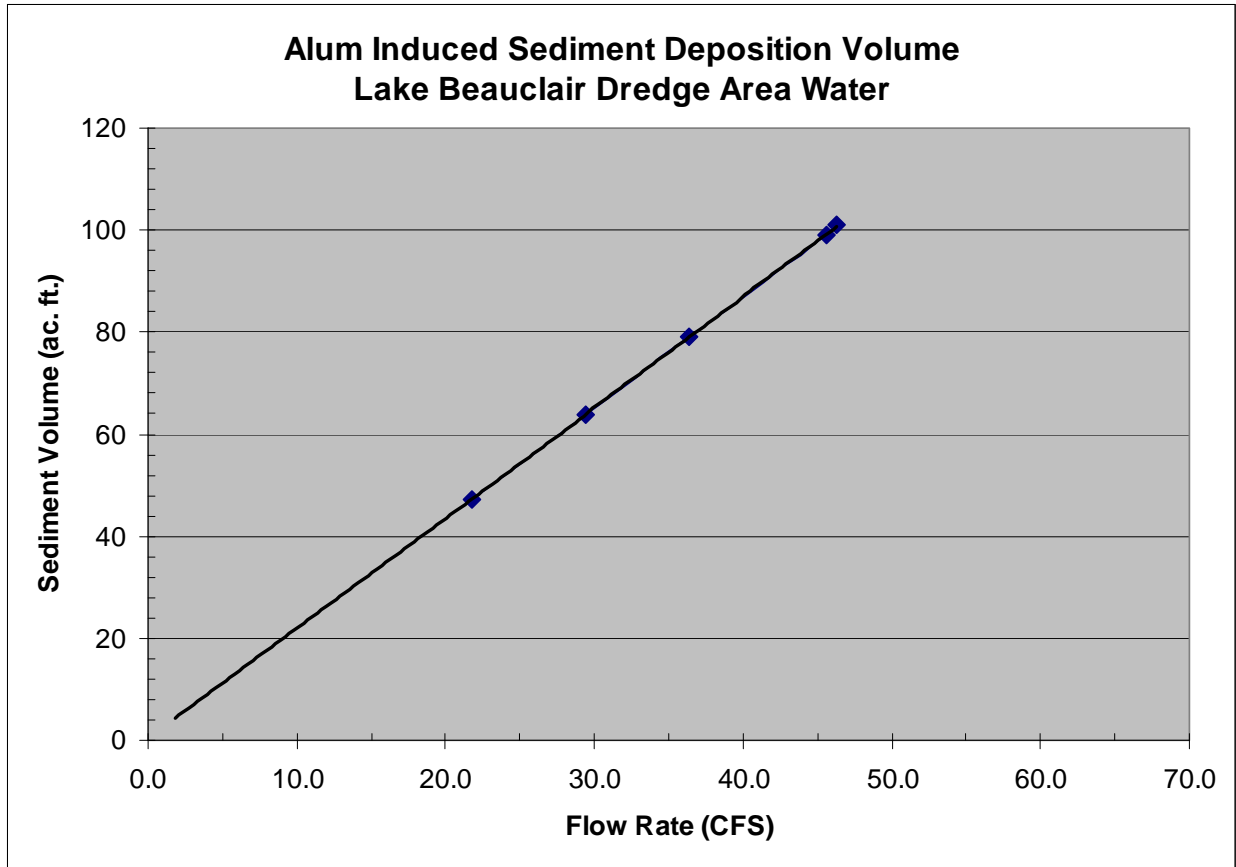
Polymers are most effective when the hydrocarbon chain expansion time is maximized, thus these flocculants are proposed for injection into the pipeline several thousand feet upstream, prior to deposition into cells F/G. As a result of the intended flocculation process, the sediment contained in the dredged slurry will consolidate in the cells F/G, and water released from this process will flow to the isolated basin proposed as a polishing pond in the northeast corner of cell G.

Alum, in this application, will be used as a ‘polishing’ agent to further reduce turbidity and to reduce the level of nutrients and phosphorous described above. Alum will be added to the decant water entering the isolated polishing basin in the northeast corner of cell G. Depending on the concentration levels of the noted nutrients and phosphorous remaining in the decant water from the primary flocculation phase, a layer of material may form in the bottom of the polishing area. An extensive evaluation investigating the sediment deposition potential of water from the project was performed by Environmental Research & Design, Inc. (ERD) (Beauclair canal Alum Treatment System Evaluation, Final Report, 2002). The following table summarizes the findings from this report, based on alum dose of 7.5 mg/l as Al.

**Project Area Water Flow Rate vs. Wet Floc (Sediment) Production**

<b>DESIGN WATER FLOW RATE (ft<sup>3</sup>/sec)</b>	<b>ANNUAL WET FLOC PRODUCTION (ac-ft)</b>
21.8	47.3
29.4	63.8
36.4	79.1
45.6	99.1
46.3	101

The discharge rate from the disposal area to the polishing basin is not expected to exceed 5,000 gpm. Plotting the data shown in the table, and by linear extrapolation rearward to the expected maximum flow rate of 5,000 gpm (11 cfs), we can expect that a maximum deposition of approximately 24 ac. ft. will occur over the 25 acre polishing basin. This is slightly less than a foot in thickness and will remain below the maximum prescribed elevation of deposited material discussed in previous submittals. The following graphic shows the sediment depth/flow rate correlation and rearward deposition projection.



Both aluminum sulfate and the polyacrylamides are somewhat acidic, with pH values generally between 4 and 5, and 5 and 7 respectively. However, at dilution ratios approaching 40,000:1, detection of any pH change resulting from treatment is highly unlikely.

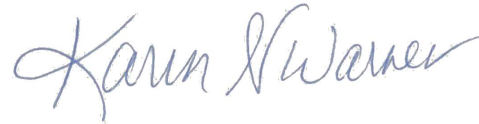
Polishing basin discharge will be pumped to the NuRF, where pH and alkalinity will be monitored during pre-release treatment. Fluctuations in pH can be addressed by adjusting the alum injection rate to the system, and if necessary, by adjusting the rate of discharge to allow for appropriate pH recovery.

- 5. If any revisions to the 11" X 17" drawings are made to address items in this RAI, please submit one set with the response. The drawings must be signed, sealed, and dated by a professional engineer.**

Revisions to the project plan set are limited to those described in response to Question 3, above. The revised signed, sealed, and dated plan set is included as **Appendix A**.

This concludes our response to questions provided by DEP to-date regarding the requested permit approval. Thank you for your consideration of this enhancement project. Please do not hesitate to contact me or John Kiefer, P.E. with any questions you may have regarding the information provided above.

Sincerely,

A handwritten signature in blue ink that reads "Karen N. Warner". The signature is written in a cursive style with a large initial "K".

Karen N. Warner  
Project Manager

knw:jc

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