

Nov. 12, 2018

**Environmentally Friendly Bulkhead (EFB) Webinar  
September 19, 2018, 10-11 AM  
Meeting Notes (Final) and Summary of Responses and Comments**

**Webinar Information:** <https://usace.webex.com/meet/lacy.s.pfaff>

**Telephone Information:** 1-877-336-1831; Code: 3709243; Security #: 1234

**Attendees:**

Jenny Peterson - DEP	Pace Wilber – NOAA
Lacy Pfaff - USACE	Jocelyn Karazsia – NOAA
Ann Lazar - DEP	Jason Spinning - USACE
Erin McDevitt - DEP	Kurtis Gregg – NOAA
Matt Harold - PE	Terri Jordan-Sellers - USACE
Christine Raininger – FWC	Peter Bacopoulos - DEP
Fritz Wettstein – FWC	Xaymara Serrano Vicente - USACE
Samir Youssef Itani - USACE	Steve Conger - USACE

**Notes:**

- Taskers are assigned to Corps – Lacy Pfaff/Steve Conger/Terri Jordan-Sellers.
- Drawings discussed below are not intended to be final permit application drawings but are intended to provide information so that the IWG can provide further design feedback to the COE prior to final permit application submittal. A package of preliminary permit drawings produced following this meeting was provided to the IWG on 11/1/18.
- Narrative Corps responses to meeting taskers are shown in [BLUE](#).
- FWC provided additional comments on the design of the EFB by letter dated 10/27/18. This letter is attached to the meeting summary.
- DEP provided responses via telephone on 11/02/2018 and via memo on 11/7/18 (attached to meeting summary)

**Taskers:**

1. Clarify what the top of sheet pile wall will look like. Is it expected to be safe for recreational users in the area?

**Corps response:**

- The Corps does not believe the top of the sheet pile is a major safety issue as it will be flush with the rip-rap behind it and at the mudline. Its presence should not increase the risk to anyone in proximity to it beyond the risks of swimming in the open environment.
- The majority of the piles should not have any burrs and sharp edges (the way it comes from the mill). The only piles that should be cutoff are the piles that were damaged during driving operations or have reached refusal.
- Corps can't clarify what the top of the steel sheet pile wall will look until the final design is performed. The top of the wall elevation will be shown on the typical wall section. The top of the wall is proposed to be set at EL 0.0 MLLW (i.e. the bottom elevation of the tidal prism).

2. Openings in the wall/riprap:
  - a. Need a plan view showing the bulkhead/riprap alignment that clearly shows the existing location of the openings.
  - b. Provide information on the current status of each existing opening (i.e., whether it is presently open or closed based on the condition of the existing rip-rap materials), including the smaller ones ("channels") located in the southern end of the project. Provide a consistent / clearly defined terminology for all the openings, channels, and other features along the EFB.
  - c. Members of the IWG recommended maintaining existing openings / current level of connectivity. A reduction in connectivity could be considered a secondary impact. FWC recommended that openings be spaced at least every 100 feet. Creating new openings could cause localized loss of mangrove habitat around the opening (i.e., conversion of mangrove to open water), but it could also increase connectivity to adjacent mangrove areas if designed appropriately. It was recommended on the call that the Corps/ FWC identify areas where there may be opportunities to create new openings. For example, if there are any areas where mangroves are not immediately behind the breakwater that could be opened without a loss of habitat. Alternatives should be identified by the Corps / FWC for discussion with the IWG.
3. Illustrate, through detailed drawings, the design of the "wrap-arounds" where the openings meet the bulkhead/riprap. Need to ensure the "wrap-arounds" avoid designs that could cause entrapment of turtles or manatees.
4. Need detail cross-section and plan view of the proposed openings that show the various scenarios.
5. Need cross-sections of the wall/riprap that cover the various scenarios (water, upland, or mangroves landward of the wall).
6. Need a delineation (Rule 62-340, F.A.C.) of the mangroves in the area effected by the EFB. Identify any mangrove areas that are mitigation for prior projects.
7. Clearly show location of mangroves and seagrasses on plan views; include areas of mangrove trimming or mangrove removal.
8. Describe how riprap will be laid, including size etc. Show literature/engineering analysis supporting permeability.

Corps response:

The attached table (Permeability Values) has typical permeability values for different material. In this table, the typical permeability of gravel ranges from 1 to 100 cm/sec and is superior than sand which is rated as "good drainage". Dumped rip rap is more porous than gravel and the size of the voids is much larger than gravel and hence more permeable. On the attached table, riprap falls on the left side of gravel with permeability values much larger than 100 cm/sec.

Riprap is typically placed over a graded or prepared foundation soil. Typically, a filter fabric is placed on the foundation soil to minimize soil loss through the riprap and to maintain the foundation soil in place. Above the filter fabric, a bedding stone (such as gravel) is placed that provides protection to the filter fabric from puncture during placement of the riprap material and it helps also in the placement and distribution of the riprap. The riprap material is typically a large graded rock. For this project it is expected to have a thickness of about 3 feet with a large particle size of about 1.5 to 2 feet, graded to a small particle size of about 6 inches. The riprap gradation and thickness will be sized during the design phase of the project.

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**Other Comments:**

1. Riprap will be exposed at all times (above highest recorded high tide). (Structure crest will be +6.0' MLLW. Station ID8722951 indicates the highest observed water level was +4.42' MLLW on 10/25/73).
1. Term to be used for the breaks in the wall is "openings", not notches or gaps since there will be no wall constructed at the openings.
2. Wall will be constructed prior to the channel construction.
3. Material between bulkhead and channel may erode but has low probability of eroding. Bulkhead will protect areas landward of channel from eroding. The cross sections provided are the **predicted slopes** produced after the deepening of the project occurs.
4. Construction can include a 25- foot swath landward of the bulkhead where the contractor can clear and grub. This will be considered an impact, and should be quantified and included in impact acreages.
5. The Corps will produce As-Built drawings after the project is complete.
6. Another meeting is requested after the information listed above is complete. Read ahead materials should be provided with adequate review time for the IWG to provide meaningful input to the COE on EFB design.

Attachments: Table: Permeability Characteristics of Soils and Their Methods of Measurement

10/25/18 Letter from Jennifer Goff (FWC) to Jason Spinning (Corps)

11/07/2018 Memo from DEP entitled "DEP comments on the proposed bulkhead for the Port Everglades Navigation Improvement Project".