

Darcie McGee@BCC@Viera

Sent: Tuesday, September 13, 2005 5:15 PM
To: 'Lymari Merheb'; 'lmerheb@mai-aec.com'
Cc: 'Amanda Elmore@BCC@Viera'; 'Kwami Pennick@BCC@Viera'
Subject: Sebastian Inlet Marina

Lymari:

Section 62-3666(9) states, "For structures that existed prior to the effective date of the ordinance from which this division is derived, remodeling and other types of development which do not increase the amount of impervious surfaces within or threaten the integrity of the shoreline protection buffer will be allowed."

Section 62-3661 states, "*Impervious surface* means a surface which has been compacted or covered with a layer of material so that it is highly resistant to infiltration by water. This shall include but not be limited to semi-impervious surfaces such as compacted clay, as well as most surfaced areas, roofs, sidewalks and other similar structures."

First we have to address two issues at this site.

1. A review of historical aerial shows that there are unpermitted impacts to the surface water protection buffer. The buffer looks fairly consistent from 1995 to 2001. There are more impacts near the shoreline in 2002, but it is unclear if they fall within the 50-foot buffer. The 2003 aerial shows more impacts. The 2005 aerial is drastically different. Obviously the 2004 hurricanes played a part in the site, but hurricanes would not have given the owner a pass to alter the shoreline without a permit. Additionally, there was a call into Code Enforcement last week about unpermitted work in the buffer. Any illegally placed fill will have to be removed and the shoreline restored. Any shoreline restoration plan resulting from illegal activities will need to be submitted to the Board of County Commissioners for approval.
2. New rock revetment – The revetment does not conform w/NRMO code and it appears the debris from the demo of the old building was dumped at the shoreline. The construction debris will have to be removed and replaced with a properly designed coquina rock revetment.

I would suggest a meeting w/NRMO to delineate those areas that are subject to restoration. We will look at historical aerials and impacts with respect to the 50-foot shoreline protection buffer. Once we get these addressed we can then look at those areas that were legally impacted for redevelopment (assuming they are impervious). Here's what we came up with regarding impervious cover:

The USDA SCS Soils Survey shows that the site has mapped Basinger sand (Ba) on the east side & Paola sand PfB to the west.

Ba:

Permeability = >20"/hr

Hydraulic conductivity = $\sim 1 \times 10^{-2}$

14.9 cm/hr @ 2"-8"

9/13/2005

39.0 cm/hr @ 8"-20"

PfB:

Permeability = >20"/hr

Hydraulic conductivity = $\sim 2 \times 10^{-2}$

93.3 cm/hr @ 6"-9"

37.4 cm/hr @ 13"-19"

We will then need to establish the (legal) existing impervious areas. Paved areas are obviously impervious. For other areas of marl or limerock, please follow the procedure below:

- Map the soil type in the buffer.
- Document the vegetation cover. Because highly compacted soils severely limit vegetation growth, these areas will be considered pervious.
- Conduct soil borings to a depth of 3 feet BLS. Log soil lithology.
- Conduct permeability tests. The USDA SCS Soils Survey shows permeability at about 1 to 2×10^{-2} cm/sec. The definition references compaction of material that makes it highly resistant to infiltration by water. NRMO consulted with our PG to determine a fair way to quantify this. Highly compacted soils (95-98%) would yield hydraulic conductivities at approximately 10^{-8} to 10^{-9} cm/sec. This is a stringent number to meet, therefore, we feel a permeability in the order of 10^{-5} would be adequate in defining impervious areas.

Alternatively, you may submit your own delineation methodology and Staff (including a Professional Geologist) will review your submission. Please call me to make an appointment or if you have any questions. Thank you.

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