

# Review of the Bldg 9-10 Swale



***Sean's Review & Recommendation to add ~1 foot of fill dirt, in the Bldg 9-10 swale, during the next "dry season" (~Dec-Feb, weather permitting)***



27 Oct 2015

Sean Stapf  
Owner, Unit #1223

# SCOPE of this Presentation

**BACKGROUND:** 2015 has been a very rainy summer (plus El Nino); raining virtually every week, for months. This has put a drainage burden on virtually the entire Indian River lagoon, so many Cocoa Beach docks are underwater.

**Ramp Road, City Dock**



**Local Riverfront Home**



**Our Harbor Isles Bldg 9-10 Swale**



**HOWEVER:** The swale between our Buildings 9 & 10 DOES appear to be retaining a water depth that is deeper than expected for our mapped flood zone, and deeper than ideal for a “dry retention pond” (i.e. not allowing air and sunlight to the grass, even after several days without rain). So... after checking with the mapped flood zones, it appears the swale has settled since the original developer grade, and could be raised with a foot or so of “fill dirt”.



# DEFINITIONS of FLOOD ZONES

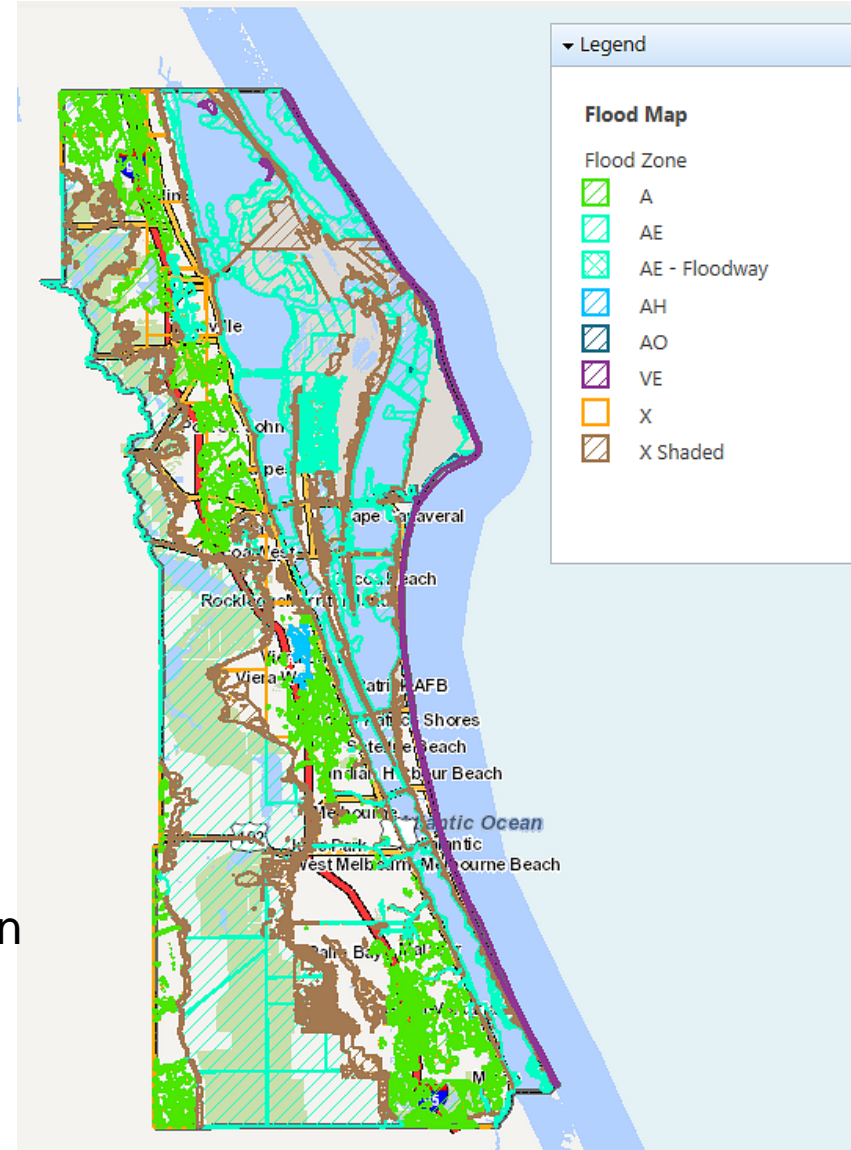
**NOMENCLATURE:** The following letter assignments are commonly drawn on flood-zone maps. Basically: 100-yr and 500-year flood thresholds, 100-yr being the hazardous rate; a ~26% chance of flooding during a 30-year mortgage, thus requiring flood insurance.

- Flood Zone A = 100 year flood zone, with no set sea level flood elevations
- Flood Zone AE = 100 year flood plain (i.e. ~1% chance, per year)
- Flood Zone AH = 100 year pond flooding (1-3 ft)
- Flood Zone AO = 100 year river flooding (1-3 ft)
- Flood Zone VE = 100 year flood plain + storm-driven waves
- Flood Zone X-Shaded = 100 to 500 year flood plain (no insurance required)
- Flood Zone X (unshaded) = "Out of the X-zone" = Higher elevation than the 500 year flood plain (i.e. less than a 0.2% chance of flooding, each year)

**GOAL:** Describe perspective on us filling in 1 foot of soil into Bldg 9-10's swale, which seems to have lingered more months of being underwater than usual, during this rainy 2015 season.

**REF:** [http://gis.brevardcounty.us/flood\\_map/](http://gis.brevardcounty.us/flood_map/)

**Best description:** <https://www.countyofdane.com/plandev/floodplain/faq.aspx>



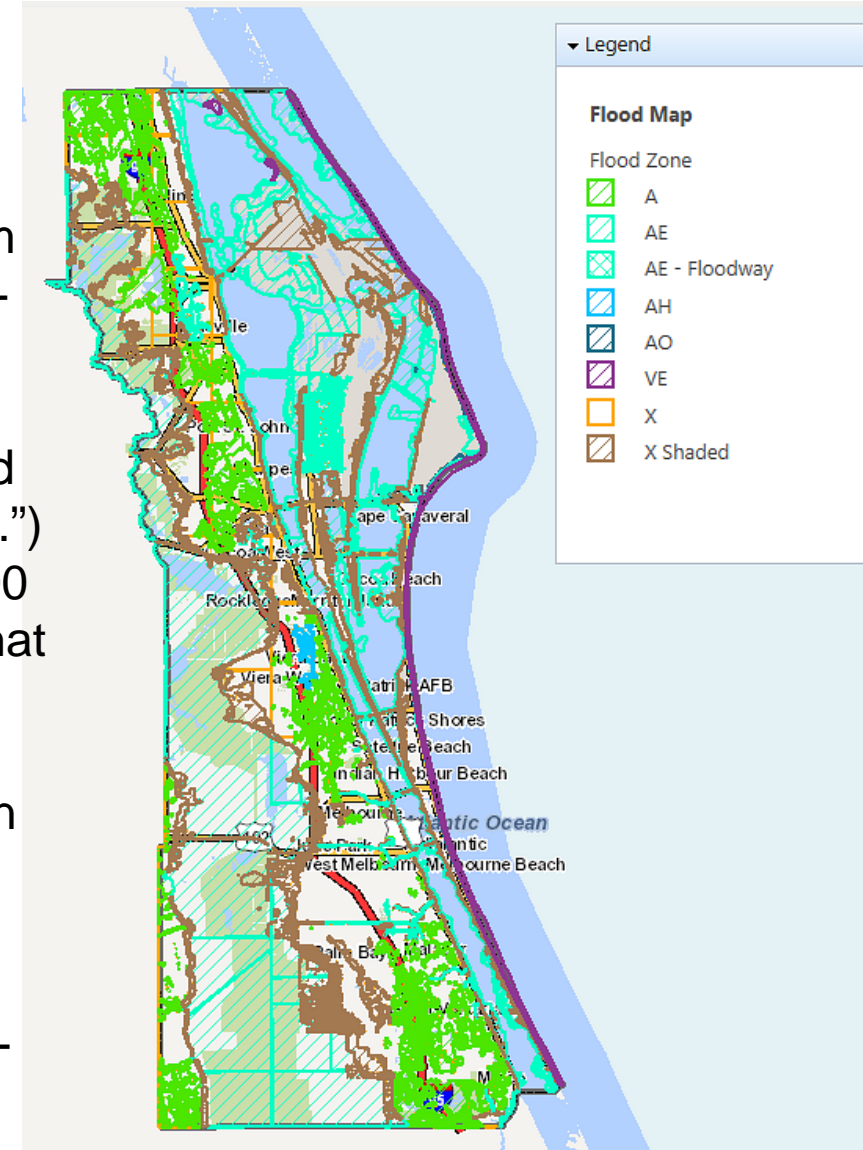
# DEFINITIONS of FLOOD ZONES

## TECHNICAL NOTES:

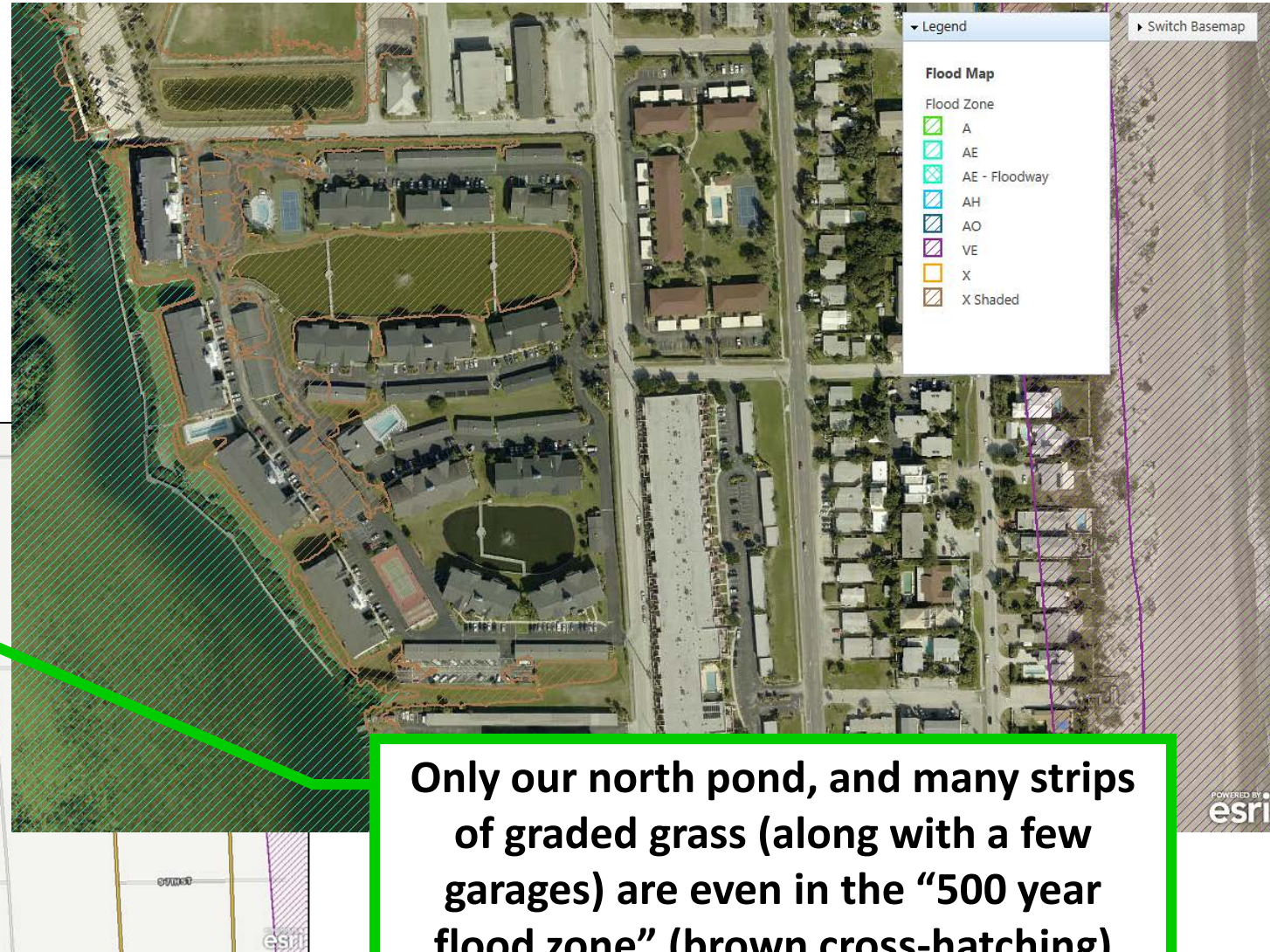
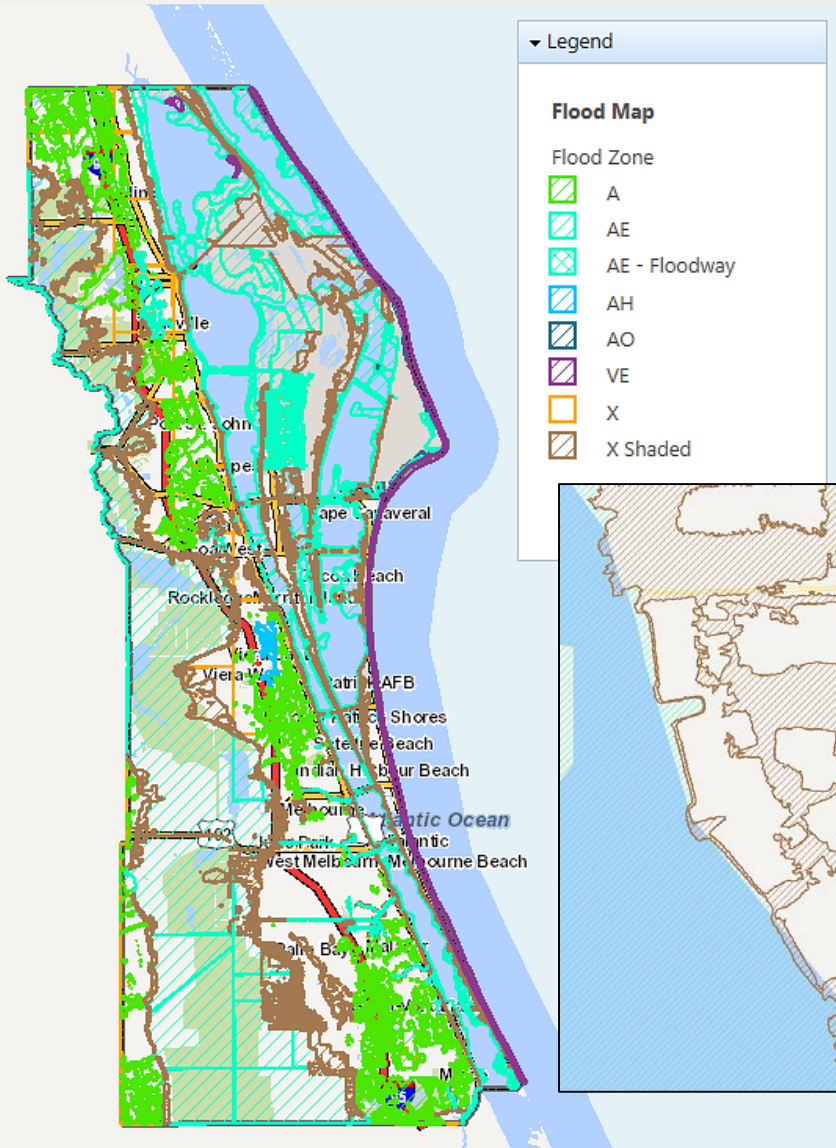
Recall that...

- 1) A “flood” does NOT include “wind-driven water” (i.e. a “storm surge”, from a hurricane). Flood insurance does NOT cover policy-holders from wind-driven water. Our HURRICANE insurance DOES cover us from that.
- 2) A “100 year flood zone”, technically...
  - Does NOT mean that you’ll get a flood every 100 years (i.e. “We had a flood in 1864, so we should have flooded in 1964, and will in 2064.”)
  - Does NOT even mean that your AVERAGE flood period is “every 100 years” (Actual averages are often 150-200 years between events that flood a “100-year flood zone”).
  - Means you have a “1% chance of flooding, every year”... (which mathematically actually works out to ~63% chance of flooding, within a 100 year period)

But – as a good “conversational” number, it’s fairly accurate to use the term “100 year flood zone” when you’re trying to say, “We’d need a 100-year event to flood here.”

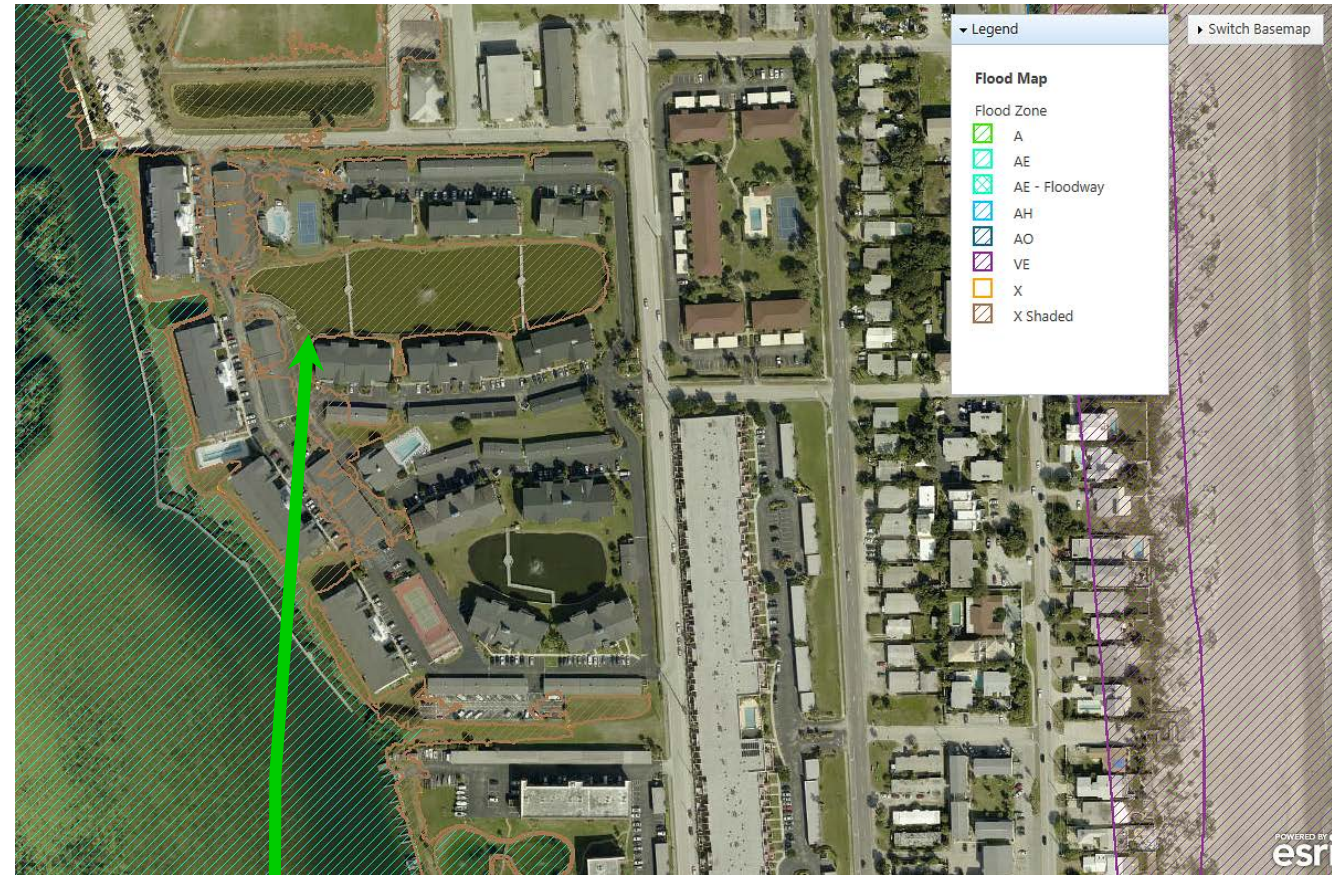
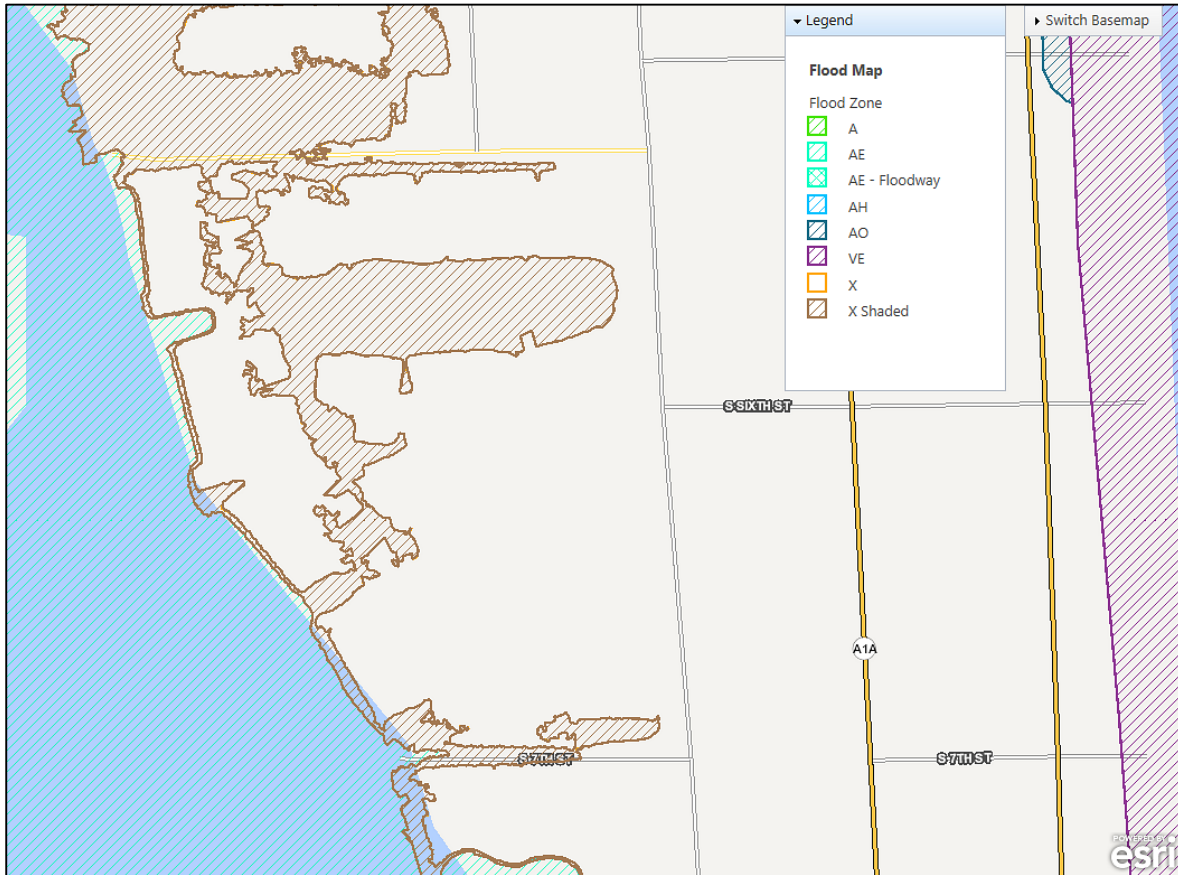


# Harbor Isles is Basically in the “500-year Flood zone, or Better”



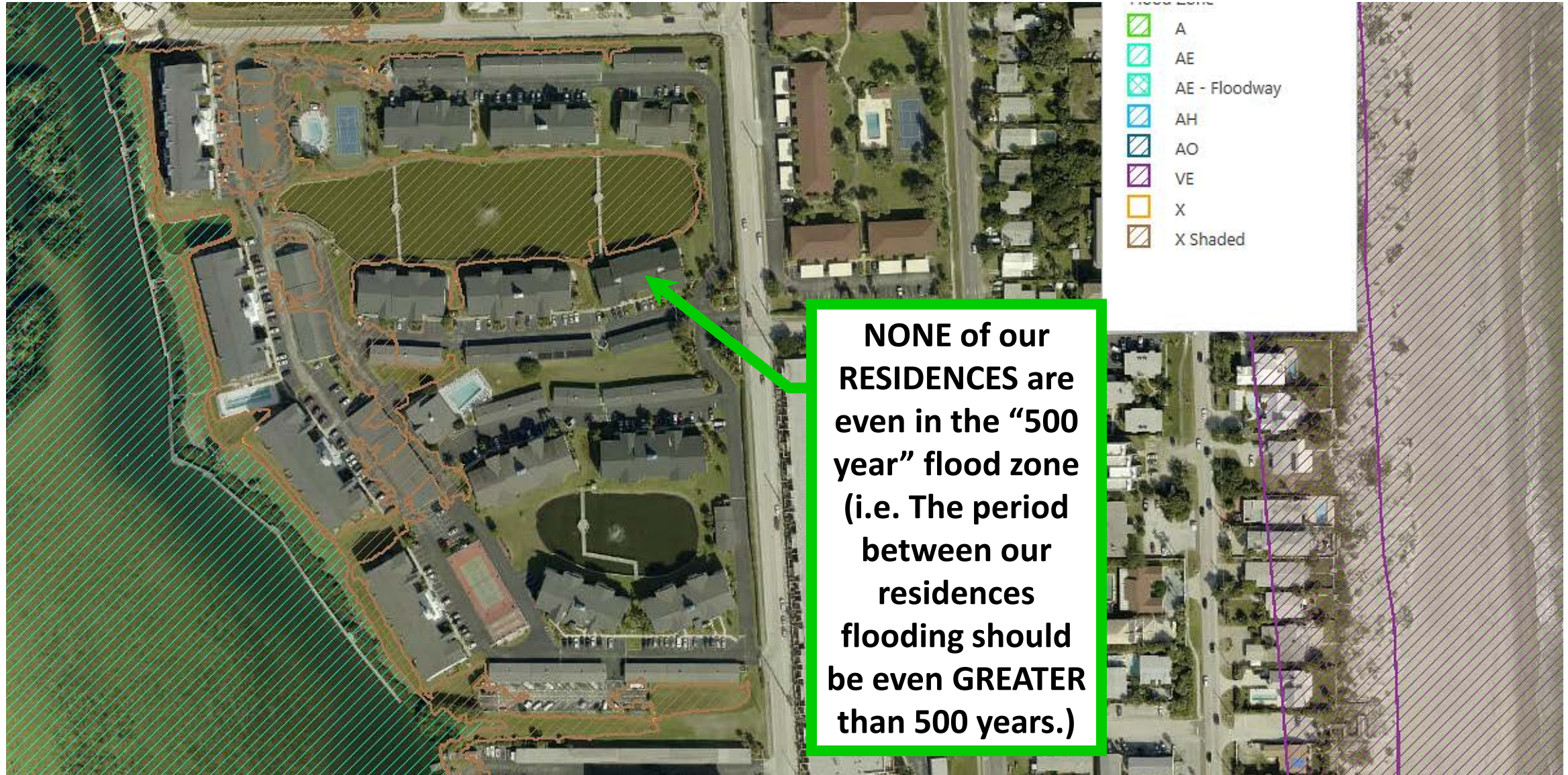
Only our north pond, and many strips of graded grass (along with a few garages) are even in the “500 year flood zone” (brown cross-hatching)

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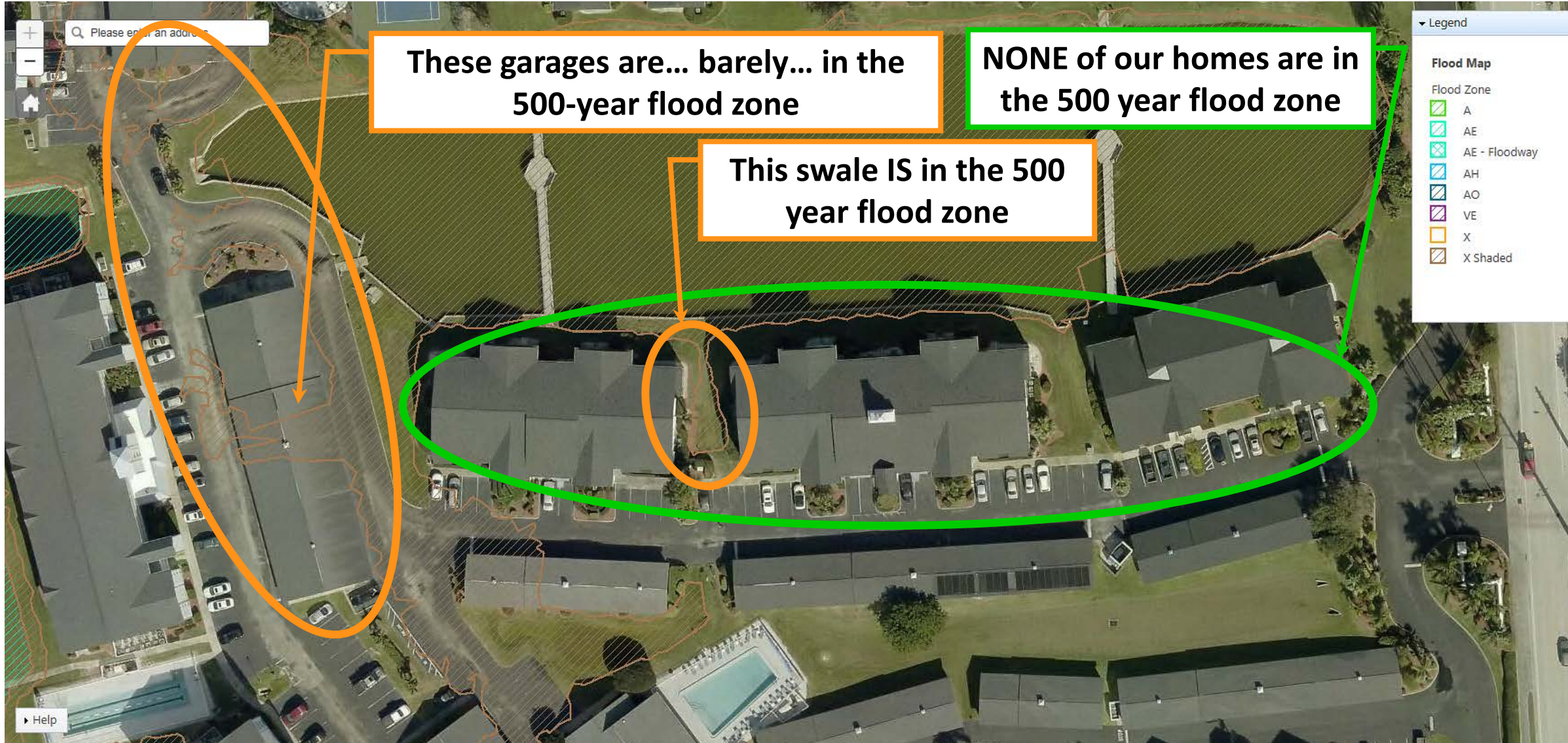


**Only our north pond, and many strips of graded grass/landscaping (along with a few garages) are even in the “500 year flood zone” (brown cross-hatching)...**  
**Which is why we are not recommended (or required) to have flood insurance**

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These garages are in the 500-year flood zone

Bldg 9-10 swale is NOT even in the 500 year flood zone (so: If it's full for months, we're probably justified that it has settled since original developer grading, and could be refilled with a foot or so of dirt)



## ALSO INCLUDED...

According to

[http://www.mynews13.com/content/news/cfnews13/news/article.html/content/news/articles/cfn/2015/10/22/high\\_water\\_levels\\_in.html](http://www.mynews13.com/content/news/cfnews13/news/article.html/content/news/articles/cfn/2015/10/22/high_water_levels_in.html) ...

This year's "El Nino" (and a slowed Gulf Stream flow) is ALSO causing the OCEAN levels to run about a foot high.

This explains why the high RAIN rates over these months have not been able to drain as easily out Sebastian Inlet, during low tides.

Regardless: The extra ~1ft of Mean Sea Level (MSL) should NOT have caused the degree of flooding/swampy conditions in our "500 year flood zones", around Harbor Isles, so...

This still indicates some "settling" in our dry-retention areas, which is good to address.

### El Nino causing high water levels along Indian River Lagoon



Oceanographers said El Nino is the culprit for a high water levels in areas of Merritt Island. (Brevard County)

By Jerry Hume, Brevard County Reporter

Last Updated: Thursday, October 22, 2015, 2:52 PM

# CONCLUSION:

## WHEREAS...

- a) The Bldg 9-10 Swale is mapped as being OUT of the 500 year flood map (i.e. higher than a 1-3ft minor flood level), yet...
- b) Has been full with 1+ feet of water, every day, for 4+ months, and...
- c) We've double-checked that the "levels are equal" (among ponds, river, and swale), i.e. "There's no clogged pipe", then...

**CONCLUSION:** The Bldg 9-10 swale has apparently settled over the decades since the original developer grading. So, we're justified in adding a foot or so of fill dirt (peeling back the sod, adding soil, then replacing the sod) – in order to return this swale to having more dry months, per year (and thus helping the grass in the swale maintain sunlight and air, to preserve its ability to filter nutrients as a "dry retention pond").

## RECOMMENDATION:

- 1) Wait for dry season (Winter; ~Dec-Feb?), peel back Bldg 9-10 swale sod, dump ~1ft of packed fill-dirt, then lay sod back down, in order to lesson the submerged months in this swale.
- 2) Also review OTHER "swampy" areas in HI, to potentially raise those bottoms a foot or so during FY2016, to allow for cleaner dry retention – and potentially the construction of new "boardwalks, bridgewalks, and sidewalks" to access the pond bridges and other areas during FY2017.

# For More Information...



See references, and/or: Contact board of directors, Harbor Isles II

- Sean Stapf,  
Unit #1223