**ANC 3/4G Email Correspondence Regarding Turf and Stormwater Management with Cynthia Collier, Environmental Research Analyst and Resident of ANC 3/4G**

**From:** Higgins, John (SMD 3G02) <3G02@anc.dc.gov>
**Sent:** Tuesday, February 8, 2022 1:59 PM
**To:** Cynthia Collier <cynthiaacollier@gmail.com>
**Cc:** Speck, Randy (SMD 3G03) <3G03@anc.dc.gov>
**Subject:** Re: ECC Field Info attribution

Cynthia:
Thanks for your response on attribution and the additional information. Your professional expertise is very helpful.
Regards, John

**From:** Cynthia Collier <cynthiaacollier@gmail.com>
**Sent:** Tuesday, February 8, 2022 10:57 AM
**To:** Higgins, John (SMD 3G02) <3G02@anc.dc.gov>
**Cc:** Speck, Randy (SMD 3G03) <3G03@anc.dc.gov>
**Subject:** Re: ECC Field Info attribution

Hi John,

Yes that's fine. I reviewed my prior emails to see if there was anything to correct. At one point in my first email I say natural turf would be "stomped into oblivion in the first year." That's an exaggeration. It would likely take a few years to compact the field to the point that environmental benefits were negated. It depends on the composition of the understructure and field, maintenance, and use, all of which is hypothetical since Maret only planned for an artificial turf field. Compaction starts in the upper layers of the soil, where maintenance can provide some relief. But once compaction advances below the first inch or two of soil, the only way to fix it is to dig up the field and rebuild the soil substrate. It's an expensive, messy, and invasive process that requires shutting down the field for months. From personal observation, the field owner usually doesn't rebuild the field until it is in such bad shape that water pools on the compacted and impenetrable field in such big puddles the field is unusable for days after a rain, i.e., years after the field has lost most of it's capacity for infiltration. That means years of minimal stormwater control. That's what I was thinking of when I condemned natural turf fields during the Maret office hours. A natural turf field inevitably spends years barely functional for either sports or for stormwater mitigation, then spends months shut down having soil dug up and trucked in and out, which is always a mess.

There have been advancements in soil mixtures and how field underlayers are built to extend the life of natural turf fields. If you decide to go with natural turf, it's possible the field may be serviceable for many years before needing to be excavated and rebuilt, though it would be in

sorry shape for part of that time. I'd expect the field to need re-excavating and rebuilding at least once during the 50 year lease and possibly be in desperate need of another refresh at the end of the lease, unless they limit non-Maret use. An artificial turf field may need the top layers skinned off and replaced every ten years or so, but the underlayers are unlikely to need rebuilding. That makes it a faster, easier process.

-Cynthia Collier, Environmental Research Analyst

On Fri, Feb 4, 2022 at 3:06 PM Higgins, John (SMD 3G02) <3G02@anc.dc.gov> wrote:

Hi Cynthia:

As noted in my recent memo to you, we will be considering in more detail the transport, hydrology and other physical aspects of the ECC field with experts or DC agency people. So just to cover the bases, on attribution of the material I am gathering, let me know if its OK with you to cite your memos to me and name as one source for the turf, hydrology aspects.
(This is my journalist's regard for sourcing kicking in, per my career as a reporter).

Regards,
John Higgins
Commissioner ANC3G

**From:** Cynthia Collier <cynthiaacollier@gmail.com>
**Sent:** Wednesday, January 12, 2022 1:21 PM
**To:** Higgins, John (SMD 3G02) <3G02@anc.dc.gov>
**Subject:** Re: ECC Field Turf and Natural Grass

A bit late, but some more information that may help your discussion. Claudia Russell asked about why the retention bar is set at a 1.2" rain. In DC, 1.2" rainfall is a 90th percentile rainfall event. Based on historical weather data, 90% of rainfall events accumulated 1.2" or less in a day. This calculation excludes sprinkles of less than 0.1 inches. Probably based on the National Weather Service Reagan Airport location (DC's only official weather station). In other words, 1.2" capture is predicted to be sufficient 90% of the time. If you want to push the bar higher, a 95th percentile rainfall event is 1.7". In DC, the Anacostia Waterfront Development Zone requires retention of 95th percentile rainfall events. Obviously we're not in that zone, but it's a precedent for requiring the 95th percentile rainfall event. The 95th percentile standard is also used for federal development projects. The Anacostia zone has special exceptions and stormwater credits because that standard can be hard to reach. Indeed, that much retention would be a stretch for this site, and Maret would likely fight it hard. But that at least gives you and Friends of the Field an idea of what is considered reasonable if you want to push Maret. For reference, see the DC stormwater manual and the EPA Technical Guidance for Stormwater

Runoff Requirements on Federal Projects .The DC stormwater manual also has some requirements you could borrow when discussing potential trees (starts around page 263) if you push them to plant more.

Cynthia

On Wed, Jan 12, 2022 at 9:11 AM Higgins, John (SMD 3G02) <3G02@anc.dc.gov> wrote:

Cynthia:

Thank you. This is a very helpful perspective.

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Regards, John Higgins

**From:** Cynthia Collier <cynthiaacollier@gmail.com>
**Sent:** Wednesday, January 12, 2022 5:48 AM
**To:** Higgins, John (SMD 3G02) <3G02@anc.dc.gov>
**Subject:** Re: ECC Field Turf and Natural Grass

Hi John,

This got a bit long, but hopefully it helps.

Five years ago I switched jobs to work on environmental monitoring projects in the Great Lakes. But before that I spent nearly a decade working on stormwater issues in the DC area. My knowledge is a few years out of date, but the principles should be the same. I also admit artificial turf was not widely used back when I was working in DC. If someone at DOEE has more experience with turf, go with their opinion.

When people argue the environmental benefits of a natural turf field, they're picturing something like the current ECC field. But that field is barely used. Instead, picture a field of patchy, thin grass riddled with mud puddles or dust bowls.

Heavily used fields quickly become compacted. Compaction severely diminishes environmental benefits. Grass struggles to push roots into compacted soil and those roots suffer from limited oxygen in the soil. Grass either doesn't grow or is so weak it rips out when players run across it. Sparse grass means less water drawn from the soil and transpired, less cover or food for critters, and less impediment to slow and filter water flowing across the surface. Compacted

soil doesn't allow water to infiltrate as well. Instead, water runs off across the surface, straight to a drain and into the stormwater system with little delay.

Compare that to Maret's proposed artificial turf system, which includes a permeable underlayer that detains up to a 1.2" rain before slowly releasing it to the stormwater system. True, there are few critters that will live in artificial turf, but you have a controlled stormwater detention system that won't be stomped into oblivion in the first year like natural turf. If you need to ask for concession to offset other issues, you could ask for more water detention, though the more water they detain the more expensive it will be. Plus re-engineering may be expensive.

Compaction is faster when soil is wet, so a natural turf field should not be used after rain until it dries, maybe a few hours in summer or a few days in early spring. For reference, it rained over 0.1 inches (i.e., more than a sprinkle) about 6 times each month between Presidents day and Memorial day in 2021, the spring season that Maret plans to use the fields heavily. If the field has to dry before use, that's at least a week each month the field is unusable. They can't afford to miss that much play time. So either they play on it wet, speeding up compaction and erasing the environmental benefits, or they don't play and we congratulate ourselves on cutting down 40 trees to build a 3.7 acre yard no one can touch 20% of the time. What a waste. If we destroy the current ecosystem, let's maximize the benefit we get for that sacrifice.

There are several mechanical aeration tools commonly used to relieve compaction in natural turf by slicing grooves into the soil or punching out plugs. These may help areas with moderate compaction, but won't save areas of heavy wear like goal mouths and center field. And even then, avoiding wet use is still advised. By contrast, artificial turf can be played on while wet and the infill can be re-fluffed if it gets compacted.

Natural turf fields require irrigation. Keeping 3.7 acres of grass alive through a Washington summer, particularly when under the stress of daily use, would consume a lot of water that would be better left in the river for the fish. Maret indicated they would not water artificial turf. (Confirm this with them. I can't remember if the language they used was definitive.)

Artificial turf does cause a heat island effect, which is a downside. Maret said they will likely use Brockfill, a wood product that will minimize that impact, but it will still be warmer than a natural turf field. The most realistic way to request more heat island mitigation would be more trees or trees with good canopy cover. It would not be unusual to request that 1 tree be planted for every tree cut down, either planted on site or in the sewershed (e.g., ECC property, nearby street trees, provided free to neighbors to plant in their yards).

When evaluating environmental concerns, be aware that most studies of chemical pollution and heat island in artificial turf were conducted on crumb rubber infill. Crumb rubber is chopped up tires, so it had a lot of nasty chemical issues and got scorching hot. Maret has stated they will not use that type of infill. Between the fertilizer and herbicide for natural turf or the chemicals and microplastics of artificial turf, there's no clear winner.

Consider putting in the agreement that Maret will use Brockfill (or whatever product Maret thinks is most likely) "or an equivalent product that meets or exceeds" certain criteria (I don't know enough to say what criteria are relevant other than heat). That way the neighbors won't worry about a bait and switch.

I'll also point out that if Maret is forced into a natural turf field, they may have to limit community use to protect the field from compaction. The less usable this field is, the more likely a second field will have to be built somewhere else to meet the city's demand for field space. That means a second greenspace is destroyed. Be careful that in your attempts to minimize environmental impacts at this site, you don't create a greater environmental impact across the city as a whole.

Cynthia Collier
Research Analyst, Environmental Science

On Tue, Jan 11, 2022 at 6:41 PM Higgins, John (SMD 3G02) <3G02@anc.dc.gov> wrote:

Cynthia:
I was intrigued by your comment at the recent forum on the EEC Maret field project related to artificial turf versus natural. This seems to be a recurring topic and for our ANC to address it accurately I think your information could be helpful. I would be grateful if you could explain your view, **briefly** and if you have any reference provide that. We are not looking for a landscape thesis here but a brief professional view per your background in environmental science. Does your background involve landscaping and/or hydrology issues? If you could provide the information by noon Wednesday (Jan. 12) it would be great.

Thank you.
John Higgins
Commissioner
ANC3G SMD-02