CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 585-1800

W13.1a

UCS-NOID-0002-23

(Baseball Stadium Turf)

December 13, 2023

CORRESPONDENCE

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Wednesday 13.1 UCSB playing field
Date:	Monday, December 11, 2023 9:02:54 AM
Attachments:	UCSB response to staff report.docx

From: nancy Okada <nxxokada@gmail.com>
Sent: Friday, December 8, 2023 4:42 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>; Fearer, Sam@Coastal <sam.fearer@coastal.ca.gov>; ExecutiveStaff@Coastal <ExecutiveStaff@coastal.ca.gov>
Subject: Wednesday 13.1 UCSB playing field

Please send proof of receipt. Thanks.

Sent from my iPhone

California Coastal Commission
13 December 2023

University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf)

California Coastal Commissioners and staff:

The organizations signed below applaud the staff report and strongly urge a **YES** vote on Cesar Uyesaka Stadium:

We thank the staff for recognizing Special Condition One (1) is crucial to coastal environmental health.

> *"Special Condition One (1) requires the University to submit Final Revised Project Plans that include the installation of natural turf – as opposed to artificial turf – at the subject site and addressing any additional site improvements required for the same."*

A **YES** vote will:

- Protect the environment from known toxic chemicals and microplastics from synthetic turf, thereby also protecting human health.
- Hold UCSB to conditions set forth in their Long Range Development Plan (LDRP).
- Require reduction of total impermeable surfacing.
- Hold UCSB to their policies and programs on greenhouse gas emissions reduction, and the use of non-renewable resources, sustainability programs including Green Building, Climate Protection, Waste Reduction and Recycling and Environmentally Preferable Purchasing. Water conservation can be achieved with professional installation and organic management of newer natural grass hybrids designed for drought tolerance and high intensity play.
- Will recognize that petrochemical synthetic turf is not an environmentally superior choice.
- Follow the science.

Synthetic turf requires significant maintenance, if for no other reason than to keep the warranty in effect.

UCSB can have a playing field that does not need to be rested seasonally and will last some 30 years without replacement. With professional soil testing for chemical and textural analysis, as well as foodweb bioassay, professional selection of either seed (better results) or sod installation, proper organic natural turf management and maintenance adjustment to suit hours of use can ensure success.

Organic management is not a product swap and proper training is available. Costs decrease significantly by year three to five. Electric maintenance equipment (even chalk markers) will further enhance a safe, natural, sustainable environment for students and staff alike.

Newer hybrid natural grass, tailored for the local soil conditions, will also allow a marked reduction in water usage. Winter dormancy is a natural condition and athletes are not playing on dead grass or soil, but rather the thatch that has built up. Newer hybrids coming online stay green in the winter, for those who think that a field that is dormant in winter doesn't meet their expectations for year round green grass.

Excessive watering in the winter months is not the answer, but indicates that proper training in organic natural turf grass management is needed.

We do ask that discrepancies in the staff report be corrected prior to a vote and signature. These include:

- Page 6, final ¶ incorrectly states *"…a two inch layer of **permeable** artificial turf, a **permeable** layer of "ProPlay"* pad…"
  Change to ***impermeable.***

- Page 6, final ¶ incorrectly states *"…polyethylene grass fibers woven into a fabric base layer…"*
  Change to base layer is made from polyurethane, latex or polyvinyl chloride.

- Page 7, ¶ 1, 1st sentence *"Onsite stormwater would be able to pass through the upper layers of the artificial turf field…"* This statement is not in alignment with the science, The entire system is considered **impermeable**. Page 7, ¶ 1, *"The mid-layer Pro[P]lay pad of the proposed artificial turf field would be **permeable** to water but would also function as a filter to prevent infill and grass fragments from passing through."*
  Statement needs to be corrected to read the entire synthetic turf system is impermeable.

  The above statement as written does not reflect:

The best BMP, even with drain filters, will capture a small percentage of microplastics and virtually none of the PFAS lost from all components, including the proposed yellow knotty pine BrockFill. Calculations in our initial letter noted nearly 1,000 pounds of used tire crumb lost to surface water annually. The reality is, BrockFill floats. It contains PFAS. Nutrients from plant based infills are implicated in red tides and toxic algal blooms.

Microplastic blade loss to air, water and soil would be between 224.2 and 1,066.3 pounds per year

Microplastics from the base layer of the plastic carpet is estimated to be 438 pounds/year (2023)

We ask that staff incorporate an acknowledgement that Best Management Practices would not prevent contamination of air, water and soil from microplastics, chemicals and excess nutrients from plant based infill.

- Page 7, ¶ 2 *"…the proposed artificial turf field would not require irrigation…Full-field washdowns would not occur at the proposed field."*

  This statement is not reflective of sound practice. Cleaning of synthetic turf is generally a condition of warranty. To not remove biological fluids, animal droppings, and leaded AVGAS and other pollutants, not only from the proposed field, but all synthetic turf installed on the UCSB campus (including childcare areas) is unconscionable. This also applies to not cooling a plastic surface to a playable temperature to avert burns and heat related illness up to and including death.

  "…the notion that it is "maintenance free" is wrong.To keep your field performing at the highest level, routine care and maintenance must be followed…Your synthetic field comes with an AstroTurf Warranty. The Warranty itself is directly related to the maintenance performed on your field. The Warranty can be voided if your field is improperly maintained, abused, over-used, or neglected."
  https://astroturf.com/maintenance/
  https://issuu.com/asttroturf/docs/astroturf-maintenance-brochure-2023

- Page 7, 2nd ¶, last sentence: false statements include *"…flame retardants would not be used on the field (which is not flammable).*

  We ask that staff include a disclaimer that the University makes the statement on page 7 not the staff, and is inconsistent with the statement on page 15, ¶ 2.

  Flame retardants are used in manufacturing, and despite this, synthetic turf is flammable. Additionally, wood infill is obviously flammable. BrockUSA has only tested "flammability" to 40ºC (104ºF).

- Page 15, ¶ 2. *"University **confirmed** that there would be no cleaning, conditioning, or sanitizing of the artificial turf field and that flame retardants would not be used on the field (which is not flammable). Material testing and specifications provided by the University **confirmed** that neither the proposed turf nor the proposed fill would contain hazardous PFAS compounds often associated with artificial turf fields, and **confirmed** that the proposed untreated woody fill material ("BrockFill") would present no additional concerns in relation to chemical composition."*

  We ask that the staff report wording be changed from "confirmed" to "reported and confirmed."

  The rationale for requesting this change is that they are false statements. We are well aware of the "no PFAS" games played, which often include manipulating the tests ordered as well as the results. We look forward to receiving these results from UCSB.

- Missing reports: project specific water quality analysis, WQHP, material testing for all of the proposed field materials analyses detailing artificial turf material degradation rates, anticipated microplastic transport rates, anticipated efficacy of microplastic retention strategies and any other information as required by the Commission should be made available on the Commission website.

  We disagree with all claims of PFAS free materials and have included testing results for the proposed shock pad and infill, both of which contain PFAS. We intend to have an unpaid, expert, third party review of the claims that the AstroTurf brand is PFAS free. Synthetic turf has not been PFAS free since its early days and produced an even more inferior product that resulted in more brittle blades. PFAS is required for extraction of the plastic yarn through machinery to prevent sticking.

  The Commission requested confirmation of recycling from the University. We acknowledge the University will not be able to provide proof of recycling, as there is none. We have provided documentation below that AstroTurf "repurposes" old fields, which generally means they sell or donate the entire field or sections, passing it off to more unsuspecting consumers.

We thank staff for the correction of identified deficiencies in this staff report. Provision of accurate details in such a significant public document is of the utmost importance.

We wholeheartedly support the staff recommendation and urge you to pass the NOID expeditiously.

Respectfully submitted,

Dianne Woelke MSN, Board Member

Safe Healthy Playing Fields, Inc.
https://www.safehealthyplayingfields.org
SHPFI is an all-volunteer nonprofit 501-c-3

Diana Carpinone, President

Non Toxic Communities
https://www.nontoxiccommunities.com

Suzanne Hume, Educational Director & Founder

CleanEarth4Kids.org
https://CleanEarth4Kids.org

Dr. Ronald Askeland, SD-SEQUEL Coleader

San Diegans for Sustainable, Equitable, & Quiet Equipment in Landscaping
http://sd-sequel.org

Nancy Okada, Chair

Sierra Club CA Coastal Subcommittee
https://www.sierraclub.org/california/cnrcc/water

Anna Christensen, Co-Chair

Los Cerritos Wetlands Task Force, Angeles Chapter, Sierra Club
https://angeles.sierraclub.org/los_cerritos_wetlands_taskforce

Susan Kirks, President

Susan Kirks

Madrone Audubon, Sonoma Co.
https://www.madroneaudubon.org

Vanessa Armstrong, Co-Chair

Moms Advocating Sustainability
www.momsadvocatingsustainability.org

Jay Feldman, Executive Director

Beyond Pesticides
https://www.beyondpesticides.org

BEYOND PESTICIDES

Rika Gopinath, Chair

Rika Gopinath

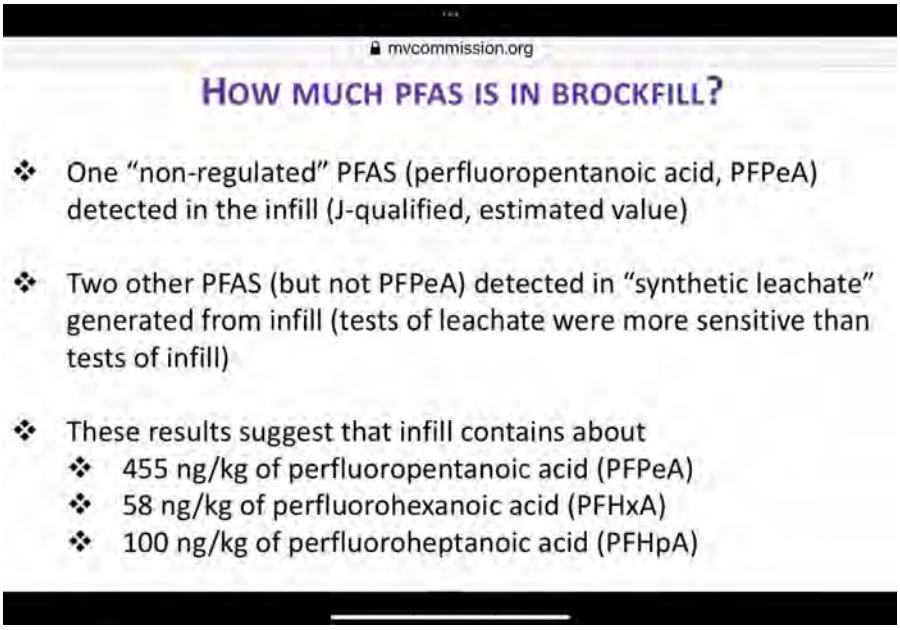
Yard Smart, Marin
https://www.yardsmartmarin.org

Stop. Think. Protect.
YardSmartMarin.org

***SUPPORTING DOCUMENTATION*:**

Loss of BrockFill infill with rain:

PFAS in BrockFill:



BrockUSA shock pad shown to contain PFAS (26 ppm [parts per million] total organic fluorine (TOF):

Report prepared for:
Nichole Hunt
Alpha Analytical Labs
8 Walkup Dr
Westborough, MA 01581
Email: nhunt@alphalab.com, subreports@alphalab.com

Report prepared by:
Debbie S Robertson

Purchase Order:

For further assistance, contact:
Debbie S Robertson
Report Production Coordinator
PO Box 51610
Knoxville, TN 37950 -1610
(865) 546-1335
debbierobertson@gaibraith.com

Sample: Brock Shock Pad
Lab ID: 2021-M-7028 **Received:** 2021-01-21

Analysis	Method	Result	Basis	Sample Amount Used	Date (Time)
F : Fluorine					
	GLI Procedure E9-3	26 ppm	As Received	209.33 mg	2021-01-25

For all samples on this report:
1. Amended Report: This report amends data included in report 128242

Signatures:

Published By:	Debbie.S.Robertson	2021-02-01T17:14:52.777-05:00
Created By:	Debbie.S.Robertson	2021-02-01T17:14:43.37-05:00

- Physical signatures are on file.
- "Published By" signature indicates authorized release of data.

Backing of FieldTurf synthetic turf and Proplay shock pad, shown to contain PFAS: 16ppm TOF in carpet backing; 61ppm TOF in shockpad:

Sample: 275792-A Ports Mouth NH -Turf Backing
Lab ID: 2021-N-9399 **Received:** 2021-07-21

Analysis	Method	Result	Basis	Sample Amount Used	Date (Time)
F : Fluorine					
	GLI Procedure E9-3	16 ppm	As Received	202.22 mg	2021-07-22

Sample: 275794 -Shock Pad
Lab ID: 2021-N-9400 **Received:** 2021-07-21

Analysis	Method	Result	Basis	Sample Amount Used	Date (Time)
F : Fluorine					
	GLI Procedure E9-3	61 ppm	As Received	216.20 mg	2021-07-22

Trancribed testimony of unpaid expert analytical chemist Kristen Mello, MSc on PFAS in Synthetic Turf:

sonix

NAME
Kristen Mello testimony for DRI 352-M4 2021-3-4.m4a

DATE
September 4, 2022

DURATION
11m 37s

START OF TRANSCRIPT

[00:00:02] Speaker1
Thank you, commissioners, for accepting my testimony and my thanks to your staff for all of their assistance. I'm sending this recording because your meeting schedule conflicts with my own. For the record, I received no offer, real or implied, of compensation in return for this testimony, and I have no financial interest in the outcome of your proceedings. My name is Kristen Melo. I live in Westfield, Massachusetts, and I'm the director and co-founder of Westfield Residents Advocating for themselves. Indulge me a moment for background. I'll tell you why I'm sticking my nose in your business. I was born and raised here in Westfield, which used to be exit three off the Mass Pike. I went to UMass Amherst for my bachelor's degree in chemistry and the University of Delaware from a master's degree in analytical chemistry specializing in chemometrics. I did not start out as an activist. In the fall of 2016, I was helping my brother raise his daughters when we found out that our water was contaminated with per and polyfluoroalkyl substances. As one of my nieces at the time was a formula fed only infant, we boiled the water to ensure its safety. Unfortunately for us, boiling the water concentrated the PFAS we'd been giving her, and that's how I became an activist. So the data driven background, I started finding out everything I could. I was told that Barnes Air National Guard Base, home of the 104th Fighter wing base, from which my father retired, was the point source of our PFAS contamination from years of fire training with aqueous film forming foam.

[00:01:25] Speaker1
Something I think you can understand: Our city is divided by a river. All of our north side municipal drinking water wells are contaminated, and we have a few environmental justice communities. So while I could have protected my family by installing a reverse osmosis system for cooking and drinking water, there were many in our community who could not or were not even aware of the problem or danger. Instead, WRAFT,formed in my living room on a February night in 2017 in response to this contamination, aimed at education and advocacy for our community. WRAFT also lobbied hard for Westfield to be included in one of the first exposure assessments conducted by the Agency for Toxic Substances and Disease Registry. ATSDR took the blood of 459 Westfield residents in September 2019. 92% of participants had higher PFAS levels in their blood serum of at least one of the PFAS tested than the average American. It is from this background and with this history that I respectfully offer the following for your consideration with references included in the written text for your convenience. Without going deeply into it...First, in general, PFAS have a structure with a functional group head and a comparatively non reactive fluorinated alkyl tail that repels both water and oil.

[00:02:40] Speaker1
These compounds are persistent, bio accumulative toxic and bio magnify in the food web. On toxic, I will get into more detail about, but by way of definitions, persistent, as in resistance to degradation, not easily broken down into safe components in the environment or in organisms. Bio-accumulative, as in organisms take them up faster than they can process them out. And bio magnify, meaning concentrations increase as you move up the food web. Modern artificial turf fields and their components are made with PFAS. PFAS are used to aid in the extrusion process of the turf carpet fibers. In some cases, PFAS are also used as co-monomers in the synthesis of the plastics that then get extruded into carpet fibers with the PFAS lubricant. In a very loose breakfast metaphor, sometimes the stuff is used as an ingredient in the waffles, and sometimes it's just used to coat the waffle iron plates. But either way, since all waffles get cooked on the coated waffle irons, the resulting vinyl waffle will give you PFAS into your water. In addition, artificial turf field underlayments can...also have been made with PFAS, particularly if their purpose is to prevent direct infiltration of stormwater, organic contaminants, turf cleaning and conditioning agents, pesticides and any anti mold, anti bacterial and antifungal agents that get applied to the carpet and infill during maintenance.

[00:04:01] Speaker1
I was relieved to see that PFAS testing had been ordered for the MVRHS proposed fields, turf and system components. Despite the limitations of EPA certified protocols and issues, the chain of custody and the sample size and the matrix effects and the surrogate recoveries results from both rounds of testing revealed PFAS. Round one PFAS test results revealed detectable PFAS concentrations for PFBA, PFPPA, PFHxA, PFHpA, PFOA, PFDS and 6:2FTS. Now for noting, but unrelated to last, round one also found significant doses of the plasticizer Bis-(2-ethylhexyl) phthalate and phenol in the artificial turf and phenol, 2Methylphenol, 3Methylphenol, 4Methylphenol, 2,4-dimethyl phenol and benzyl alcohol in the Brockville. All these compounds could leach into storm water and groundwater. Some of these compounds may be naturally occurring where the Brockville trees are grown, but their addition to your stormwater and groundwater could well disrupt your local ecosystem in ways you have not considered. Round two tests revealed more of what round one could not. Significant PFBA concentrations post oxidation for all samples; significant PFHpA post oxidation with the BrockFill and significant PFPpA post oxidation for the ultra bond. The total organic fluorine analysis revealed 70 parts per million total organic fluorine from the turf field.

[00:05:28] Speaker1
Carpet results were not achieved for the shock pad, so there's no indication of how much PFAS that would contribute to your aquifer. Because the calibration requires available analytical standards, many of these proprietary PFAS compounds can't be quantitatively tested for. We can only quantitatively test for a fraction of the likely 10,000 PFAS currently in use. So what do these results tell us and not tell us? The results tell us that the installation of this preferred proposed artificial field turf system will place a point of PFAS discharge onto your irreplaceable, fresh water, sole source aquifer. The results do not tell us the background level of PFAS in soils at this area. As Dr.Green rightly points out, the background levels of PFAS and soils in New England cannot be assumed to be zero. The PFAS test results do not indicate the total mass of contaminants that you are considering adding to the aquifer. The Laboratory Results report concentrations of PFAS extracted from less than one half pound sample of each component. The amount to determine the amount of PFAS that you would be depositing into your aquifer. You must multiply these values out across the mass of the entire installation, including all the components and the replacements over the coming decades. With respect to fate and transport, these PFAS compounds will move, especially the short chain ones, potentially affecting groundwater and surface water miles away.

[00:06:57] Speaker1
Aquatic life, including shellfish down gradient, may experience uptake of fast contamination and toxic effects. This is a particularly important concern when fish and shellfish exposed to fast contaminated waters are then consumed by people as the islands, fish and shellfish certainly are. When it comes to PFAS exposure and toxicity, PFAS bioaccumulate in the blood and tissues and biomagnify in the food web. Nobody gets exposed to only one PFAS. Real world PFAS contamination is always a mixture of them and PFAS mixture toxicity research is still unfolding. PFAS single compound toxicity studies are plentiful and ongoing. Because these compounds are endocrine disruptors, there are many non-lethal end points of concern. There have been studies reporting that exposure to some PFAS, for example, may increase the likelihood of obesity, reduce both sperm count and penis size, increase the incidence of pre-eclampsia, and can affect the ability to breastfeed. Even worse for pregnant mothers, PFAS are known to transfer from mothers to babies through the placenta and cord blood and breast milk. PFAS exposure has been linked to reductions in antibody response and disease resistance and increases in airway hypersensitivity, asthma and risk of autoimmune disease. PFAS that build up in the lungs include the short chain PFBA, PFPpA, PFHxA PFBS and the longer chain PFHxS, PFHpA, PFOA, PFOS and PFNA and PFDA and PFDS.

[00:08:29] Speaker1
Only the 6:2FTS found in your study is not on the list of PFAS that are found to reside in lung tissue. And if nothing else, I say to you matters, please hear this: Elevated plasma PFBA concentrations were associated with an increased risk of a more severe course of COVID 19, including increases in hospitalizations, ICU stays and deaths. The thing is, the regulations always chase after the pollution. So residents are depending on the commission to think this through. It is likely the applicant just wanted the most durable field for their athletes. But the Commission must examine the potential unintended consequences. A choice to install this option would be, after tremendous deliberation, intentionally choosing to install a point source of PFAS contamination into your island's freshwater sole source aquifer. What's worse, a point source of PFAS that the current [US] EPA certified analytical methods probably cannot even completely identify or quantify. This PFAS will migrate, transported in stormwater and groundwater off the MVRHS site and will be taken up by plants and animals in the ecosystem affecting drinking water and water used for agriculture and aquaculture. Bioaccumulating in the plants and animals that are exposed to it and biomagnifying along the food web as those plants and animals are consumed. Choosing to permanently pollute your aquifer with PFAS could potentially result in economic losses and expose you to lawsuits.

[00:10:07] Speaker1
Your decision could affect eat local movements, food production, property values and tourist dollars. Since you cannot rely on the assumption that background PFAS concentrations in the area that this field is installed is zero, please consider that the PFAS from this field installation would add to any PFAS in the groundwater. What if this choice causes the local wells to exceed the Massachusetts MCL of 20 parts per trillion for the sum of six PFAS? What if next year MASS DEP adds more short chain PFAS to the combined MCL and you find yourself in violation of regulations after the fact? In addition, because you knew to perform the PFAS testing in the first place, approving the installation of this artificial turf field system would be knowingly and intentionally allowing manmade, persistent, bio accumulative toxic compounds into the drinking water of thousands of people in violation of their rights under Article 97 of the amendments to the Massachusetts Constitution added in 1972. Article 97 says The people shall have the right to clean air and water. It doesn't say the people shall have the right to filtered water or the people shall have the right to water with PFAS. We haven't identified yet the rights and freshwater needs of the many outweigh the field preferences of the comparatively few. Thank you again for considering this information carefully.

END OF TRANSCRIPT

Letter sent from trade association Synthetic Turf Council President and CEO to Sen. Ben Allen; admission to PFAS in synthetic turf:

Thank you for your interest.

As promised here is the oppose letter from the Synthetic Turf Council.

Staffer Email: Grayson.Doucette@asm.ca.gov

Best,

Carlos Gutierrez
Legislative Aide
Office of Assemblywoman Pilar Schiavo
Assembly District 40
916-319-2040
Room 4140

June 21, 2023

Ben Allen, Chair
Environmental Quality Committee
1021 O Street, Suite 3230
Sacramento, CA 95814

Dear Senator Allen:

On behalf of the Synthetic Turf Council (STC)and its members, we must respectfully "Opposed Unless Amended" AB 1423 (Schiavo), which restricts the use of perfluoroalkyl and polyfluoroalkyl substances (PFAS) in artificial turf. STC members include builders, landscape architects, testing labs, maintenance providers, manufacturers, suppliers, installation contractors, infill material suppliers and other specialty service companies.

As currently drafted, AB 1423 creates significant compliance challenges for artificial turf manufacturers and suppliers for the following reasons:

1) The bill a ban on the sale of artificial turf containing intentionally added PFAS on January 1, 2024 to certain public entities and by January 1, 2025 for all sales in California. These dates do not provide enough time for manufacturers and suppliers to develop viable alternatives for the market place. We request that both dates be changed to January 1, 2026, which is in-line with other PFAS legislation currently pending.

2) The bill also intends to regulate levels of unintentionally added PFAS to 1 part per million (PPM) in total organic fluorine. While our manufacturers and suppliers fully intend to comply with the provisions of the bill related to intentionally added PFAS, we are concerned that trace quantities of a chemical may be present in natural or synthetic ingredients, recycled content, manufacturing processes or equipment. Therefore, we believe it would be more prudent (in addition to allowing for testing protocols to be developed) to establish the compliance threshold for unintentionally added PFAS at 100 PPM beginning in 2026 and 50 PPM in 2028. These thresholds have been previously recognized by the legislature in AB 1817 (Ting) (2021) and AB 652 (Friedman) (2021).

We urge the committee to consider these amendments to ensure that businesses can remain in compliance while serving its California customers.

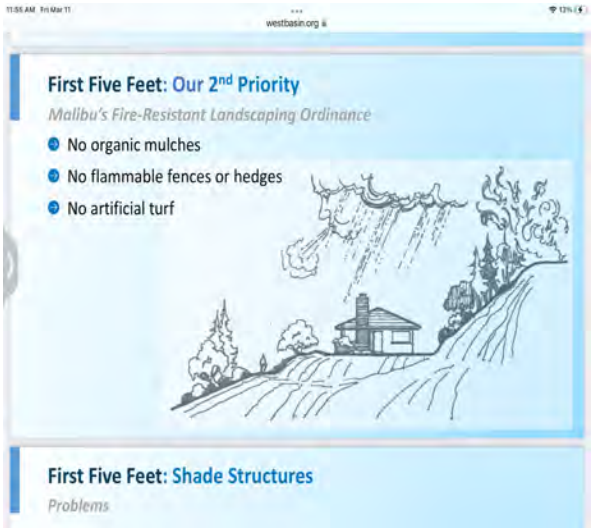
Sincerely,

Melanie Taylor, President & CEO, Synthetic Turf Council

Flammability of synthetic turf; Flame retardants used in manufacture:

TARKETT – Field Turf

Fire resistant artificial
Patent number: 8986807
Type: **Grant**
Patent Publication Number: 20120263892 Assignee: Tarkett Inc. (Quebec)
https://patents.justia.com/patent/20120263892



"Flammable landscaping material such as shredded bark and artificial turf are prohibited within five feet of a structure. Wood chips and shredded rubber are prohibited anywhere on site." https://malibutimes.com/article_a2687208-2608-11eb-ba55-f31b8b4f178b

According to Omroep Brabant, TUF Recycling was discredited in the past for violating several laws and environmental laws. The company stored more artificial grass mats than allowed, and illegally transported mats abroad. The municipality imposed multiple penalties on the company in the past. TUF Recycling was a topic of discussion on the city council's agenda for Thursday.

https://nltimes.nl/2018/10/12/large-fire-brabant-artificial-turf-company

Plastic turf in Sutton County

Used turf storage facilit

Received 17 Feb 2022 from City of Los Gatos, CA (re: Creekside Park synthetic turf end of life plans)

AstroTurf does not recycle (there is NO recycling anywhere- only repurposing or chopping up old fields for incorporation to toxic chemicals/components in otherproduct or export for toxic "advanced chemical recycling (burning):

TOWN OF LOS GATOS

AstroTurf Corporation

THE WORLD LEADER IN SPORTS & RECREATION SURFACES

AstroTurf FIELDS · Rekortan TRACKS · Laykold COURTS · SYNLAWN LANDSCAPE

AstroTurf contracts with a third-party who specializes in the proper re-use of synthetic turf as part of its end-of-life cycle. The contractor re-uses the synthetic turf in various installations. None of the synthetic turf or infill will end up in a landfill after it is removed from its current installation.

AstroTurf and cancer causing PFAS:
https://www.totalprosports.com/mlb/investigation-phillies-astroturf-deaths-six-former-players/

https://www.inquirer.com/news/phillies-daulton-cancer-artificial-turf-pfas-veterans-stadium-20230410.html

https://www.businessinsider.com/forever-chemicals-found-turf-phillies-old-stadium-2023-3

Monsanto patent for ChemGrass, later renamed AstroTurf
https://patentimages.storage.googleapis.com/cc/f1/db/13509a69e1992b/US3332828.pdf

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date:	Monday, December 11, 2023 9:02:52 AM
Attachments:	UCSB Baseball Stadium Turf (UCS-NOID-0002-23)_ Reaffirmation 12.8.2023.pdf

-----Original Message-----
From: Kelly Barsky <klbars@ucsb.edu>
Sent: Friday, December 8, 2023 4:52 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Cc: shari.hammond@ucsb.edu; Kelly Barsky <klbars@ucsb.edu>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Please see attached pdf document/ written materials for distribution and posting on the commission's website. I have cc'd Shari Hammond as she is currently en route, but please do not hesitate to connect with either of us with questions.

Thank You,
Kelly Barsky
Director of Athletics
UC Santa Barbara

UC SANTA BARBARA

Date: December 8, 2023

To: California Coastal Commission

Subject: UCS-NOID-0002-23 (Baseball Stadium Turf)

Consistent with the LRDP, the University of California Santa Barbara, Baseball Stadium Artificial Turf Project is the environmentally superior option for this enclosed NCAA Division I competitive stadium.

The statements below on Friday, December 8, 2023 are provided to **REAFFIRM** previously submitted documentation.

- Reaffirming - **Significant reduction** in water usage inclusive of the removal of the existing irrigation system.
    - Reduction in water usage **by approximately 99%** / estimated to reduce usage at the stadium **by approximately 2.5 million gallons per year**

- Reaffirming - **Storm water drainage design** reduces peak flow and stormwater treatment through rock trenches and catch basins with **treatment filters to prevent any potential debris from leaving the development site**.

- Reaffirming - **Mitigation of Microplastic Migration** is addressed by the aforementioned drainage system and an enclosed fully fenced in stadium infrastructure.

- Reaffirming - There is **No PFAS** in the production of Astroturf or the product.

- Reaffirming - **Organic Wood infill (BrockFILL)** will be used (not tire crumb rubber).

- Reaffirming - There is **No PFAS** in the infill product (BrockFILL).

- Reaffirming - Brockfill infill is a renewable organic infill which has a **cooling effect** and **does not** create a heat island or off-gassing.

- Reaffirming - **Chemical leaching is mitigated** with the use of AstroTurf and BrockFILL.

- Reaffirming - The Artificial Turf and infill has a life span of approximately 10 years. At end of life, all components of the artificial turf and infill **will be recycled** consistent with the campus-wide sustainability programs related to waste reduction and recycling.

- Reaffirming - Baseball is a non-contact sport and the proposed Artificial Turf **meets or exceeds all national standards for athlete impact safety**.

- Reaffirming - Artificial Turf installation **will eliminate** the use of regular treatments of fertilizer, pesticide, fungicide and herbicide as well eliminate the use of gas-powered maintenance equipment.

One additional affirmation, not previously provided but worth noting, is that the existing grass baseball field is unusable for approximately 50% of pre-season practice dates requiring training for student athletes to move to an existing campus artificial turf soccer field. In 2023 alone 20% of home baseball games (6 of 30) were canceled or relocated due to an unplayable field.

Consistent With 2010 LRDP Policies: The Project is consistent with the policies in the 2010 LRDP. The baseball stadium is within the area designated as Recreation and the use of the site will not change with the proposed project.

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date:	Monday, December 11, 2023 9:00:52 AM

From: Leanne McAuliffe <leannemcauliffe@hotmail.com>
Sent: Friday, December 8, 2023 3:57 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Cc: leannemcauliffe@gmail.com
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Agenda Item 13.1.a.

University of California Santa Barbara - Notice of Impending Development UCS-NOID-0002-23 (Baseball Stadium Turf)

I am supporting the California Coastal Commission's position that the Baseball Stadium be renovated with Natural Turf. With correct ground preparation, turf installation, irrigation and best management practices, drought tolerant natural turf is feasible. And if natural turf is feasible, then artificial turf should not even be a consideration. The feasibility of natural turf will be apparent if UCSB provides the transparent and independent information regarding a natural turf renovation of the Baseball Stadium that the California Coastal Commission has requested.

Artificial Turf Water Use and Pollution

The manufacturing of artificial turf is estimated to consume enough water to maintain natural turf for 18 years. An artificial sports field only has a life span of around 8 to 12 years, so it comes nowhere near a lesser use of water than drought tolerant natural turf. Then there is the water used for cooling, cleaning and maintaining artificial turf at the site of installation. And at the end of life even more water may be required in the newly touted "chemical recycling" of artificial turf. To add to that, all that water used by artificial turf is being polluted by the chemicals inherent to plastic and the added PFAS from the manufacturing process.

There is another cost of the pollution from artificial turf. The cost to mitigate (with hi-tech and costly filtration systems) any water pollution resulting from the manufacture, use or disposal of artificial turf and any of its components (plastic carpet, shockpad, infill, etc.). And further down the line, litigation costs for environmental or human health costs.

Regardless of any other factor, the water used and polluted by artificial turf alone makes it an

infeasible option especially when an oxygenating, carbon sequestering, respiring (cooling), filtering option like natural grass exists. Any water used for drought tolerant grass is returned to us with a multitude of benefits. Natural grass is the feasible option. Newer breeds of grass are also proving to be more resistant to wear, so even the old argument of less hours of use with natural turf are arguable, especially for a simple baseball field.

Though the water used in manufacturing and disposal of artificial turf may not come from, nor pollute, our local sources immediately, it all comes from the same global pond and will likely come back to haunt us somehow. At what cost? Is this feasible.

These plastic turf environmental, human health and financial costs can all be avoided simply by saying NO to artificial turf and YES to holistically feasible natural turf.
Protect our coastal waters, protect our environment and protect human health.

Leanne McAuliffe
Resident of Los Gatos, California

From: Pam Bond <pamabond@gmail.com>
Sent: Friday, December 8, 2023 11:13 AM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Dear Commissioners,

I am writing to thank you for the recommendation that you have made regarding UCSB's baseball stadium and your assessment that natural grass is feasible rather than converting the field to artificial turf. I appreciate the thoroughness of the report and accuracy in the assessment. The field's proximity to the ocean and to local waterways adds a layer of concern and I am thankful that this was clearly assessed.

I am a natural grass sports field advocate and over the past few years I have spoken to many in the natural grass field of research, groundskeeping and advocacy and the consensus is always the same. For the sake of the environment and the health of the players, coaches and bystanders, natural grass (and in our region, drought tolerant grass) is a viable and successful alternative to artificial turf. There are just too many environmental and human health concerns with plastic fields regardless of the infill material used. As research and revelations evolve around the health and environmental impacts of plastic, I believe these kinds of projects deserve much more attention than they have historically been given.

I am sure you have heard about the passing of SB 676 which allows cities and counties to ban artificial turf. This is due to the fact that any water savings that might be attained does not outweigh the environmental and health consequences. Valley Water has an updated flyer (link here and also attached) with helpful information as to why they do not allow artificial turf to be considered in their rebate program for drought tolerant landscaping. Most water districts in California have similar flyers and information. And Millbrae has become the first city to ban artificial turf this year. Excuses could be made that this is for landscaping and not sports fields but the same arguments apply. I think that even though artificial turf has really only seen increased use in schools and colleges in the last 15-20 years, institutional memory is not long and no one can see past the desire for one more game and recognize what the plastic field (and usually still tire crumb infill) is doing to our environment and our youth who play on these fields.

AB1423 would have limited allowable PFAS in artificial turf but it was ultimately vetoed by Governor Newsom only due to the lack of enforceability laid out in the law. I have attached the Assembly Floor Analysis. The only argument against and opposition to the bill to regulate PFAS came from the Synthetic Turf Council which represents synthetic turf manufacturers interests. Their argument against the bill reads in part (emphasis added):
"While our manufacturers and suppliers fully intend to comply with the provisions of the bill related to intentionally added PFAS, **we are concerned that trace quantities of a chemical may be present in natural or synthetic ingredients, recycled content, manufacturing processes or equipment.** Therefore, we believe it would be more prudent (in addition to allowing for testing protocols to be developed) to establish the compliance threshold for unintentionally added PFAS at **100 PPM beginning in 2026** and 50 PPM in 2028."

EPA's interim health advisory for lifetime PFAS exposure in water is measured in parts per *trillion*. If you consider that artificial turf breaks down over the lifetime of the product and microplastics and infill particles are being carried up into the air and settling on players or being inhaled, the desire for a higher limit on PFAS is concerning and in fact the comment references "chemicals" generally. Even if PFAS is regulated in the future, there are other chemicals of concern in the plastic such as UV protectants, colorants, fire retardants, etc. These chemicals all leach out of the plastic and both chemicals and microplastics will make it into our waterways.

Artificial turf is not a heavily regulated product and yet it is rapidly being installed across sports fields and playgrounds in California as people look to the presumed lower maintenance and water savings. Instead of building a good grass field and hiring and training qualified staff to maintain drought tolerant grass with all of its social-emotional, environmental and health benefits, the lure of artificial turf and its seeming "set it and forget it" benefits are overruling common sense. Time and time again we are seeing fields of artificial turf with microplastics and infill littering the borders, piling up by storm drains and making their way far from the field due to particles sticking to equipment, clothing, shoes and being carried by rain and wind. Currently available countermeasures to reduce this migration are inadequate.

I have attached a letter that the Santa Clara County Medical Association (SCCMA) wrote to Sunnyvale City Council regarding their Lakewood Park plans which were considering artificial turf. I encourage you to read the letter which highlights concerns with artificial turf regarding PFAS, heat, health risks, infections, injuries, and chemical exposures as well as benefits of grass relating to mental health, cooling effects, carbon sequestration and cost benefit over time. Their conclusion reads:
"There has been no proof of safety for artificial turf fields and many data gaps. There is growing evidence that the health and safety risks outweigh the benefits of artificial fields. It appears that natural grass is less expensive when a full life cycle analysis is performed. Considering that studies on the risks of long-term health have not been performed, along with absence of comprehensive data on the hazardous chemical components of artificial fields we recommend 1) not to place artificial turf on playing fields and 2) should artificial turf already be present, to replace this with natural grass."

It is imperative that community leaders and decision makers take a critical look at artificial turf now before we cover our lands with plastic and suffer the long-term health and environmental impacts over decades to come.

Sincerely,
Pam Bond
Los Gatos, CA

SENATE COMMITTEE ON ENVIRONMENTAL QUALITY
Senator Allen, Chair
2023 - 2024 Regular

Bill No.	AB 1423	**Hearing Date:**	6/28/2023
Author:	Schiavo		
Version:	6/14/2023		
Urgency:	No	**Fiscal:**	Yes
Consultant:	Theresa Keates		

SUBJECT: Product safety: PFAS: artificial turf or synthetic surfaces

DIGEST: This bill would prohibit, commencing January 1, 2024, a public entity or educational institution, as specified, from purchasing or installing a covered surface that contains intentionally added PFAS or PFAS at a concentration at or above 1 part per million (ppm) and would require manufacturers or installers to notify recipients of artificial turf that meet these PFAS criteria. Commencing January 1, 2025, this bill would prohibit a person or entity from manufacturing, distributing, selling, or offering for sale in the state any covered surface meeting these PFAS criteria. If the Department of Toxic Substances Control (DTSC) takes a regulatory action on artificial turf, would repeal the prohibitions of this bill.

ANALYSIS:

Existing law:

1) Under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) (HSC § 25249.5 et seq.):

   a) Prohibits a person, in the course of doing business, from knowingly discharging or releasing a chemical known to the state to cause cancer or reproductive toxicity into water or onto or into land where such chemical passes or probably will pass into any source of drinking water.

   b) Prohibits a person, in the course of doing business, from knowingly and intentionally exposing any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual.

   c) Requires the Governor to publish a list of chemicals known to cause cancer or reproductive toxicity and to annually revise the list. The Office of Environmental Health Hazard Assessment (OEHHA) has listed perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS),

which are members of the PFAS class, as chemicals known to the state to cause developmental toxicity and cancer.

2) Under the Safer Consumer Products (Green Chemistry) statutes (HSC § 25252 et seq.):

   a) Requires the Department of Toxic Substances Control (DTSC) to adopt regulations to establish a process to identify and prioritize chemicals or chemical ingredients in consumer products that may be considered chemicals of concern, as specified.

   b) Requires DTSC to adopt regulations to establish a process to evaluate chemicals of concern in consumer products, and their potential alternatives, to determine how to best limit exposure or to reduce the level of hazard posed by a chemical of concern.

   c) Specifies, but does not limit, regulatory responses that DTSC can take following the completion of an alternatives analysis, ranging from no action, to a prohibition of the chemical in the product.

This bill:

1) Defines "covered surface" as artificial turf or a synthetic surface resembling grass.

2) Commencing January 1, 2024, requires a manufacturer or installer proposing to sell, design, or install a field with a covered surface containing intentionally added PFAS or PFAS at or above 1 ppm to notify the recipient.

3) Commencing January 1, 2024, prohibits covered surfaces containing intentionally added PFAS or PFAS at or above 1 ppm to be purchased or installed by:
   a) A public entity.
   b) A public or private school serving pupils K through 12.
   c) A public or private institution of higher education.
      i) Requests but does not require the University of California to comply.

4) Commencing January 1, 2025, prohibits any person or entity from manufacturing, distributing, selling, or offering for sale in the state any covered surface containing intentionally added PFAS or PFAS at or above 1 ppm.

5) Requires manufacturers of covered surfaces to use the least toxic alternative when replacing PFAS in a covered surface and that if DTSC conducts an

alternatives analysis, those findings and guidelines are to govern the choice of alternatives.

6) Repeals the prohibitions in this bill if DTSC adopts a regulatory response governing activity covered in this bill.

7) Provides that, upon an action brought by the Attorney General, a city attorney, a county counsel, or a district attorney, a person or entity that violates the PFAS restrictions of this bill shall be liable for a civil penalty not to exceed five thousand dollars ($5,000) for a first violation, and not to exceed ten thousand dollars ($10,000) for each subsequent violation.
   a) Provides that if DTSC adopts regulations that conflict with this authority, the Attorney General, city attorney, county counsel, or district attorney may resolve any action brought prior to the adoption of DTSC regulations but shall no longer be authorized to bring any action.
   b) Except as described in (a) above, provides that these penalty provisions do not impair or impede any other rights, causes of action, claims, or defenses available under any other law. Provides that the remedies delineated in the bill are cumulative with any other remedies available under any other law.

Background

1) *Perfluoroalkyl and polyfluoroalkyl substances (PFAS).* Per- and polyfluoroalkyl substances (PFAS) are a large group of synthetic substances that have been widely used in industrial and consumer applications for their heat, water, and oil resistance properties since their invention in the 1930s. PFAS are used extensively in carpets, furniture fabrics, apparel, paper packaging for food, non-stick cookware, personal care products, and other products designed to be waterproof; grease, heat, water and stain resistant; or, non-stick. Commercial applications span many sectors of the economy, including aerospace, apparel, automotive, building and construction, pharmaceuticals, medical devices, paints, electronics, semiconductors, energy, oil and gas exploration, first responder safety, firefighting foams, and health care.

   Scientific studies have shown that exposure to some PFAS may be linked to harmful health effects in humans and animals. PFAS are long-lasting chemicals that break down very slowly over time. During production, use, and disposal, PFAS can migrate into the soil, water, and air. PFAS have been found in indoor and outdoor environments, plants, soil, food, drinking water, wildlife and domestic animals, and humans. The persistence and proliferation of PFAS chemicals makes it challenging to study and assess the overall potential human health and environmental risks of PFAS exposure.

2) *Hazards of PFAS.* PFAS exposure occurs mainly through ingestion of contaminated food or liquids. Exposure can also occur though inhalation and touch, and PFAS can be transferred through pregnancy and breastfeeding. PFAS remains in the body for a long time, so as people continue to be exposed to PFAS, the PFAS levels in their bodies may increase to the point that they suffer adverse health effects. According to the United States Environmental Protection Agency (US EPA), current peer-reviewed scientific studies have shown that exposure to certain levels of PFAS may lead to reproductive effects such as decreased fertility or increased high blood pressure in pregnant people; developmental effects or delays in children, including low birth weight, accelerated puberty, bone variations, or behavioral changes; increased risk of some cancers, including prostate, kidney, and testicular cancers; reduced ability of the body's immune system to fight infections, including reduced vaccine response; interference with the body's natural hormones; and, increased cholesterol levels and/or risk of obesity.

3) *Regulating PFAS as a class.* There are many thousands of chemicals in the PFAS class (the US EPA's master list of PFAS chemicals listed over 12,000 as of the writing of this analysis) and more types of PFAS can be developed. DTSC has adopted a rationale for regulating this large and diverse number of PFAS chemicals as a class rather than with a piecemeal approach. This is because all PFAS share at least one common hazard trait and regulations that focus on subsets of these chemicals have resulted in their replacement with other PFAS with similar hazards.

4) *DTSC's Safer Consumer Products Program.* DTSC administers the Safer Consumer Products (SCP, previously known as Green Chemistry) Program, which aims to advance the design, development, and use of products that are chemically safer for people and the environment. DTSC's approach provides science-based criteria and procedures for identifying and evaluating alternatives with the objective of replacing chemicals of concern with safer chemicals and avoiding the use of substitute chemicals that pose equal or greater harm. Under DTSC's SCP Program, all PFAS chemicals are "Candidate Chemicals" because they exhibit specified hazard traits. DTSC has designated two product categories that contain PFAS as "Priority Products": carpets and rugs and certain surface treatments. A Priority Product is a consumer product identified by DTSC that contains one or more Candidate Chemicals and that has the potential to contribute to significant or widespread adverse impacts to humans or the environment. Manufacturers of a Priority Product must submit certain documentation regarding their product to DTSC and submit an alternatives analysis or they can remove the product for sale in California or remove or

replace the chemical of concern. DTSC has proposed evaluating artificial turf with PFAS in its 2021-2023 Priority Product Work Plan, and previously proposed investigating PFAS in other product categories, such as food packaging and children's products, but during the investigative period the Legislature prohibited PFAS in those product categories and it appears DTSC has shifted its resources to investigating other product/chemical combinations.

While the intent of the SCP regulations is to establish a robust and thorough regulatory process rooted in science to consider exposure to chemicals in consumer products, it has long been recognized that DTSC does not have the resources to evaluate all, or even a significant percentage of, chemicals in every consumer product application. To that end, the SCP statute does not preclude the Legislature from taking legislative action on the use of chemicals in consumer product applications. When there is credible scientific evidence to support a change in state policy to protect public health, the Legislature can respond to that science more quickly than DTSC can. However, many PFAS prohibitions, including this bill, have not been assigned to an agency and therefore lack oversight and enforcement (see "Chemical bans benefit from someone in charge" Comment).

5) *Prior PFAS legislation.* The Legislature has enacted several PFAS prohibitions in the last several years. These include PFAS prohibitions at different levels across many product categories: a ban on PFAS in textiles (AB 1817,Ting, Chapter 762, Statutes of 2022); cosmetic products (AB 2771, Friedman, Chapter 804, Statutes of 2022); food packaging (AB 1200, Ting, Chapter 503, Statutes of 2021); new juvenile products (AB 652, Friedman, Chapter 500, Statutes of 2021); and, firefighting foam (SB 1044, Allen, Chapter 308, Statutes of 2020). The Legislature also authorized the State Water Board to order public water systems to monitor for PFAS and required municipalities to notify consumers for PFAS detected above notification levels (AB 756, C. Garcia, Chapter 162, Statutes of 2019). California is not alone in this: just this year, 195 new bills were introduced in dozens of state legislatures in the country seeking to ban PFAS in an expanding list of products. In early February 2023, the European Union, which already bans certain PFAS types, proposed an across-the-board ban on the use of PFAS. If adopted, the E.U.'s ban would come into effect in 2027.

Comments

1) *Purpose of Bill.* According to the author, "PFAS are a class of 'forever chemicals' which, when ingested, inhaled, or contacted with the skin can harm human and environmental health. This includes negative impacts on the

immune system, cardiovascular system, childhood development, and risks of cancer. Artificial turf fields have been found to contain PFAS, and, as fields age, they releases microplastic dust that contains PFAS. Children are particularly at risk of inhaling and ingesting this dust as they play on fields. AB 1423 protects youth and adult athletes by ensuring that fields installed in schools and by public agencies do not contain PFAS and that artificial turf of the future does not contain these harmful chemicals."

2) *PFAS in artificial turf.* A number of recent studies identified PFAS in artificial turf, where PFAS may be used as an aid in molding and extrusion of the plastic blades, or may be applied to the finished product to enhance surface properties. Artificial turf is listed in DTSC's 2021-2023 Priority Product Work Plan as part of the SCP Program. According to this Plan, chemicals in artificial turf are of particular concern because turf is frequently used by sensitive subpopulations such as young children and the potential exposure to chemicals is high because of the wear and tear the turf undergoes through high-friction athletic use and its exposure to the elements outdoors. This wear and tear also means chemicals including PFAS can readily enter the environment, including contaminating groundwater. A set of tests of artificial turf being considered for installation at a high school in 2021 detected PFAS of between 10 and 70 ppm in the artificial turf components, as measured in total organic fluorine. Existing patents for artificial turf suggest concentrations as high as 400 ppm.

3) *Chemical bans benefit from someone in charge.* Many chemical prohibition bills, including this one, are placed in a unique location in the California Codes, sometimes referred to as the "orphan codes." In these code sections, no state agency is designated to provide oversight of the provisions of the law. As a result, there is no direct enforcement, no establishment of standardized testing methods, no compliance program, no guidance for manufacturers seeking to comply with these laws, and no related information for consumers. Because of these deficiencies, it is challenging for some manufacturers to comply and difficult or impossible to know if manufacturers are complying with the requirements of the law.

   The only current option for enforcement of the prohibitions in the "orphan codes" is for a district attorney or the state Attorney General to bring an action against a manufacturer under the Unfair Competition Law (UCL), unless specified otherwise. However, this requires a member of the public to pay for the testing of a product for the presence of a prohibited chemical, and then the Attorney General or district attorney must have the resources and ability to prioritize action on these complaints. To the knowledge of this and prior Committees that have considered this bill, this kind of enforcement has not

happened, nor has any comprehensive report or investigation been done on compliance with the prohibitions in the "orphan code."

This bill takes a step forward on statutory chemical prohibitions by adding civil penalties for violations of the restrictions in the bill. These penalty provisions are in addition to the authority to enforce under the UCL, and are consistent with existing statutory penalties relating to PFAS in firefighting foam.

Further, this bill repeals its prohibitions if DTSC adopts a regulatory response on artificial turf. This approach was taken in AB 1319 (Butler, Chapter 467, Statutes of 2011), which banned bisphenol A above 0.1 parts per billion in baby bottles. Artificial turf is listed in DTSC's 2021-2023 Priority Product Work Plan as part of the SCP Program, but it will likely take a number of years to result in a regulation for PFAS in artificial turf. The intention is to ensure that there is the appropriate entity provides guidance and ensures compliance with the regulatory actions it determines appropriates, once it is prepared to do so.

4) *PFAS concentration thresholds*. This and several other PFAS prohibitions prohibit intentionally added PFAS and additionally set a concentration threshold for any PFAS in a product, intentionally added or not. Such a threshold may be warranted because determining whether PFAS were intentionally added in the manufacturing of a product can be a challenge when certain manufacturing information is proprietary or contaminated product components are used. Setting a concentration threshold can further protect public health, but the chosen concentration should be appropriate. There is no concentration of PFAS that has been proven safe, and as long-lasting chemicals, they build up in the human body and in the environment over time. PFAS in different types of products may be of greater concern than others depending on how likely the chemicals are to enter the body.

   As with enforcement, determining an appropriate concentration threshold could benefit from a public entity with scientists with health and environmental backgrounds determining the risks of chemical exposure at different levels. Without that resource, the Legislature is tasked with setting the appropriately protective standard in statute, and presumably updating those statutory thresholds by legislation when needed. An agency performing oversight would also be better-equipped to establish testing methodology standards.

   This bill would set that threshold at 1 ppm, which is low compared to previous legislation. The lowest threshold in other proposed PFAS bans is 10 ppm: AB 246 (Papan) would set a threshold of 10 ppm in menstrual products beginning

in 2027 and AB 727 (Weber) would set a threshold of 10 ppm in cleaning products beginning in 2028. Other PFAS prohibitions in statute set thresholds in different product categories ranging from 50 ppm to 100 ppm, and some have this threshold decrease over time (see the "Related/Prior Legislation" section of this analysis). For, drinking water, which may deserve the most stringent limit, the US EPA's proposed legally enforceable Maximum Contaminant Level (MCLs) is 4 parts per *trillion* (ppt) for PFOA and PFOS, two chemicals in the PFAS family.

While commercial labs do not currently appear to commonly test for PFAS concentrations as low at 1 ppm, the technology does exist and is used in research laboratories. Testing capabilities have improved with time, a trend that can be expected to continue. However, there is uncertainty about the reliability of commercial testing for concentrations as low as 1 ppm by 2024. Existing studies of PFAS in artificial turf do not all test for PFAS in the same way, but those that measure total organic fluorine, the same method as in this bill and other PFAS bills, have used laboratory testing with a detection limit that enabled testing 20 ppm. ***To be better aligned with current testing capabilities given the short timeline of implementation in this bill, the committee may wish to amend the threshold in this bill to 20 ppm.***

The opposition is also concerned that manufacturers are no longer in control of contamination that could occur after the installation of a field. ***In acknowledgement of this, the committee may wish to amend the bill to specify that PFAS testing occur after manufacturing, but before installation.***

5) *Short timelines.* The bill's statewide ban on artificial turf that contains intentionally added PFAS or PFAS above the threshold would come into effect on January 1, 2025. The opposition is concerned that smaller manufacturers may require more time to comply. ***The committee may wish to amend the bill to extend the implementation of the statewide ban to January 1, 2026.***

6) *Regrettable substitutions*. When prohibiting a toxic or otherwise hazardous chemical, it is important to prevent manufacturers from replacing the prohibited chemical with another hazardous chemical, or a chemical even more hazardous than the one prohibited. Like several other statues dealing with chemicals in the "orphan code," this bill requires a manufacturer to use the least toxic alternative when removing regulated PFAS to comply with the restrictions in this bill. DTSC does have a process to avoid such regrettable substitutions: manufacturers of products listed as Priority Products complete alternative analyses. This process takes a lifecycle approach and considers not only the toxicity of a chemical, but also its persistence and environmental

impact. This bill yields to DTSC's alternative analysis if and when that is completed. ***The committee may wish to make a clarifying amendment that manufacturers conduct alternative analyses, not DTSC.***

7) *Committee amendments.* ***Staff recommends the committee adopt the bolded amendments contained in comments 4, 5, and 6 above.***

Related/Prior Legislation

AB 727 (Weber) would prohibit, beginning January 1, 2026, a person from manufacturing, selling, delivering, distributing, holding, or offering for sale, a cleaning product that contains intentionally-added PFAS or PFAS at or above 50 ppm, on January 1, 2027, a cleaning product that contains PFAS at or above 25 ppm, and on January 1, 2028, 10 ppm. This bill is pending before the Senate Judiciary Committee.

AB 246 (Papan) would prohibit, commencing January 1, 2025, a person from manufacturing, distributing, selling, or offering for sale in the state any menstrual products that contain intentionally added PFAS or, commencing January 1, 2027, concentrations of PFAS above 10 parts per million. This bill is pending before the Judiciary Quality Committee.

AB 347 (Ting) would require DTSC to enforce and ensure compliance with PFAS prohibitions and require DTSC to test at least 200 juvenile products and 200 food packaging samples by January 1, 2025. It would authorize DTSC to assess fines against manufacturers in violation of the PFAS prohibitions. This bill is pending before the Senate Environmental Quality Committee.

AB 1817 (Ting, Chapter 762, Statutes of 2022) prohibits, beginning January 1, 2024, a person from distributing, selling, or offering for sale in the state a textile article, as defined, that contains intentionally added PFAS, or starting January 1, 2025, any PFAS at concentrations of 100 ppm or more, or starting January 1, 2027, 50 ppm or more.

AB 2771 (Friedman, Chapter 804, Statutes of 2022) prohibits, commencing January 1, 2025, a person or entity from manufacturing, selling, delivering, holding, or offering for sale in commerce any cosmetic product that contains intentionally added PFAS.

AB 502 (Allen, Chapter 701, Statutes of 2022) makes a number of updates to California's Safer Consumer Products Program in line with perceived

shortcomings from its first ten years with regards to the speed of the program to filling existing data gaps.

AB 1200 (Ting, Chapter 503, Statutes of 2021) prohibits, commencing January 1, 2023, the sale of food packaging, as defined, that contains intentionally added PFAS or PFAS at concentrations at or above 100 ppm. This bill also requires, starting January 1, 2024, certain labels for cookware products containing intentionally added chemicals from specified lists.

AB 652 (Freidman, Chapter 500, Statutes of 2021) prohibits, on or after July 1, 2023, a person from selling or distributing in commerce any new juvenile products that contain intentionally added PFAS or PFAS at or above 100 ppm.

AB 2762 (Muratsuchi, Chapter 314, Statutes of 2020) prohibits, commencing January 1, 2025, a person or entity from manufacturing, selling, delivering, holding, or offering for sale, in commerce any cosmetic product that contains any specified intentionally added ingredients, including some PFAS chemicals.

SB 1044 (Allen, Chapter 308, Statutes of 2020) prohibits the manufacture, sale, distribution, and use of firefighting foam containing intentionally added PFAS chemicals by January 1, 2022, with some exceptions, and requires notification of the presence of intentionally added PFAS in the protective equipment of firefighters.

AB 1319 (Butler, Chapter 467, Statutes of 2011) prohibits bisphenol A (BPA) above 0.1 parts per billion from bottles or cups designed to hold food or beverages for children 3 years of age or younger.

DOUBLE REFERRAL:

If this measure is approved by the Senate Environmental Quality Committee, the do pass motion must include the action to re-refer the bill to the Senate Governance and Finance Committee.

SOURCE: Environmental Working Group

SUPPORT:
California Professional Firefighters
Climate Reality Project, Los Angeles Chapter
Climate Reality Project, San Fernando Valley
East Bay Municipal Utility District
Safe Healthy Playing Fields, INC.

OPPOSITION:
Synthetic Turf Council

ARGUMENTS IN SUPPORT:
According to Safe Healthy Playing Fields, Inc.: "The presence of PFAS in synthetic turf is beyond dispute. The volume of current, 'retired' and planned playing fields and the rush to roll out plastic grass carpets by individuals, businesses and municipalities falsely believing it to be an answer to drought conditions, and the increasing frequency with which cities and boards of education are deliberately seeking to place plastic playing fields near or over waterways, single source aquifers and drinking water reservoirs speaks to the urgency that both the PFAS chemicals and the product itself must be regulated. SHPFI requests you to be acutely aware of the human health ramifications of hundreds of thousands of children and athletes often exposed for multiple hours per day and multiple days per week. We ask you to employ the precautionary principle in regards to both the chemicals and the product."

ARGUMENTS IN OPPOSITION:
According to the Synthetic Turf Council, "As currently drafted, AB 1423 creates significant compliance challenges for artificial turf manufacturers and suppliers for the following reasons: The bill a ban on the sale of artificial turf containing intentionally added PFAS on January 1, 2024 to certain public entities and by January 1, 2025 for all sales in California. These dates do not provide enough time for manufacturers and suppliers to develop viable alternatives for the market place. […] The bill also intends to regulate levels of unintentionally added PFAS to 1 part per million (PPM) in total organic fluorine. While our manufacturers and suppliers fully intend to comply with the provisions of the bill related to intentionally added PFAS, we are concerned that trace quantities of a chemical may be present in natural or synthetic ingredients, recycled content, manufacturing processes or equipment."

-- END --

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Address: 700 Empey Way, 2nd Fl
San Jose, CA 95128

Sunnyvale City Council
456 West Olive Ave,
Sunnyvale, CA 94086

October 11, 2023

Recommendation to keep natural turf grass and not place it with artificial turf for the Sunnyvale Lakewood Park renovation

Dear Sunnyvale City Council Members,

We understand that on October 24, 2023 you are planning to vote to approve the Preferred Concept Plan (PCP) for the upcoming Lakewood Park renovation which includes placing a large area of artificial turf for an athletic sport field in the center of the park.

The SCCMA Environmental Health Committee has examined this issue and recommends that you keep natural living grass and not replace it with artificial turf for the health and safety of both your community and the environment. Although in the past artificial turf seemed to be the best alternative due to reduced costs, reduced water usage, and lower maintenance, newer information has come to light regarding the direct and indirect environmental and health impacts of synthetic grass, including full life cycle analysis. This is a global problem (Armada 2022). In addition, proposed 2023 legislation in California, if it passes, would require replacing heat trapping surfaces such as artificial turf with natural systems or other cooler types of surfaces to mitigate extreme heat scenarios in schools expected in the future.

The cost of a natural field is less than synthetic fields in the long run. Daviscourt (2017) performed a complete life cycle analysis comparing artificial turn versus natural turf over an 8-year period with turf replacements and revealed that the cost savings significantly favored natural turf grass. The University of Arkansas in came to a similar conclusion when looking at maintenance costs, which include mowing, cleaning, chemical applications, replacement costs, and water use. The additional costs for synthetic turf are described below and can be quite significant.

The creation of local heat islands are a known problem on artificial fields. Temperatures can be significantly higher even under normal weather conditions due to their solar absorption and lack of evaporative cooling that natural grass has. This poses risks of burns, heat stroke and heat exhaustion, making the fields unusable in certain conditions. With climate change this will be more of an issue for athletes and children.

There is also data showing increased risks of sports injuries on artificial turf, particularly in football and soccer, as well as the promotion of antibiotic resistant bacterial infections.

Artificial turf contains hazardous chemicals and heavy metals as discussed below. Children are more vulnerable to all toxic exposures due to their immature biological systems. On an artificial sport field children and athletes are routinely in contact with the surface, especially with soccer and football; therefore, they more readily inhale, ingest, and come in dermal contact with dust and chemicals emitted from the fields. Thus, it is reasonable to expect that these synthetic turf fields can pose an increased health risk to children. Precaution is thus imperative.

In addition, artificial turf fields will last 8 to 20 years before disposal. Plastic waste is an ongoing challenge at the end of their lifetime. Typical sports fields are about 80,000 square feet and contain about 40,000 pounds of "grass" turf along with 240,000 ± 720,000 pounds of infill according to the Synthetic Turf Council. This complex mixture of compounds is not recyclable and is usually sent to the landfill with continued leaching of chemicals.

As awareness of all of these factors increase, more cities, such as Boston, are banning artificial turf in parks and on sports fields. In addition, governments in the US and abroad are restricting the use of artificial fields with crumb rubber or certain hazardous plasticizers (EU and California) due to environmental bio-accumulation of toxic chemicals.

Chemical Exposures and Contamination

Artificial turf is composed of a plastic backing, plastic "blades of grass" and cushioning infill. Typically tire crumb rubber is used for infill. All of these components are derived from petroleum products. These components contain microplastics as well as chemicals acknowledged as being hazardous such as polycyclic aromatic hydrocarbons (PAHs), bio-accumulative ("forever") per- and polyfluoroalkyl substances (PFAS), phthalates, silica (silica sand infill), polychlorinated biphenyls (PCBs), carbon black and metals such as lead, mercury, cadmium, chromium, cobalt, and arsenic. In addition, pesticides and biocides are used on artificial fields to reduce bacteria, viruses and weeds, which could cause adverse reactions and skin sensitization.

These chemicals can potentially contaminate water supplies through runoff, as well as leaching into groundwater and soil, persisting in the environment. Children can be exposed via inhalation of off-gassing compounds or ingestion of infill components. The crushed tire rubber infill adheres to skin, shoes and clothing then enter cars and homes. Based upon the presence of known toxic substances in tire rubber and the lack of comprehensive safety studies, The Children's Environmental Health Center of the Icahn School of Medicine urged a moratorium on the use artificial turf generated from recycled rubber tires. The US Environmental Protection Agency states in their assessment that "the existing studies do not comprehensively evaluate the concerns about health risks from exposure to tire crumb." (Marsili 2014).

PFAS

PFAS are found in all samples of artificial turf. They are used in processing to enhance smoothness and reduce friction. PFAS in plastics are especially problematic because they are a category of chemicals that contain multiple fluorine atoms bonded to a chain of carbon atoms which makes them resistant to breakdown. They are typically used for water resistance, stain resistance and non-stick cookware. This group of chemicals bioaccumulates in the food chain and has contaminated water supplies throughout the nation. Human health risks include endocrine disruption, adverse effects on the liver and thyroid, as well as metabolic effects, developmental effects, neurotoxicity, and immunotoxicity.

The Mindaroo-Monaco Commission on Plastics and Human Health Report 2023 concludes: "It is now clear that current patterns of plastic production, use, and disposal are not sustainable and are responsible for significant harms to human health, the environment, and the economy as well as for deep societal injustices...The thousands of chemicals in plastics—monomers, additives, processing agents, and non-intentionally added substances—include amongst their number known human carcinogens, endocrine disruptors, neurotoxicants, and persistent organic pollutants. These chemicals are responsible for many of plastics' known harms to human and planetary health. The chemicals leach out of plastics, enter the environment, cause pollution, and result in human exposure and disease. All efforts to reduce plastics' hazards must address the hazards of plastic-associated chemicals...to protect human and planetary health, especially the health of vulnerable and at-risk populations, and put the world on track to end plastic pollution by 2040 this Commission supports urgent adoption by the world's nations of a strong and comprehensive Global Plastics Treaty in accord with the mandate set forth in the March 2022 resolution of the United Nations Environment Assembly (UNEA)" Landrigan (2023).

Sports Injuries

Ford and Monsanto Industries joined efforts to make the first artificial turf in 1964 called Chemgrass which was first installed in the Astrodome when the grass died due to issues with the plastic covering of the dome. By the 1980's athletes were complaining that the turf was harder and caused more injuries. A poll by the National Football League in 1995 revealed that 95% of players believed that synthetic turf increased their risk of injuries (Claudio 2008). There is both anecdotal and scientific evidence of higher rates of injuries on artificial fields. A 2019 study from Case Western Reserve University and the University Hospital Sports Medicine Institute analyzed data collected by 26 high school athletic trainers during the 2017-2018 athletic seasons. The authors found, "*athletes were 58 percent more likely to sustain an injury during athletic activity on artificial turf. Injury rates were significantly higher for football, girls and boys soccer, and rugby athletes. Lower extremity, upper extremity, and torso injuries were also found to occur with a higher incidence on artificial turf.*" (Voos 2019) A 2005 high school football study noted that during higher temperatures there were reported higher incidences of noncontact injuries, surface/epidermal injuries, and muscle-related trauma, reported on artificial fields. (Meyer) Other surveys of high school and collegiate trainers have shown more serious concussions when athletes play on artificial fields that have a concrete foundation (Guskiewicz; Naunheim). Natural grass better absorbs physical impacts.

Infections

Methicillin-resistant Staphylococcus aureus (MRSA) has been recognized as a significant skin infection in the athletic population, causing minor to serious infections. MRSA is responsible for 33% of infectious outbreaks reported among competitive high school and collegiate athletes. Cutaneous manifestations included abscess (70%), cellulitis (16%), folliculitis, impetigo, and necrotizing fasciitis. Of the infections, 90% underwent surgical drainage, whereas 27% received intravenous antibiotics." The most common areas for infections were in the extremities: elbow, knee and forearm (Bowers 2008). It is notable that high school football players have a 4-fold increase in MRSA infections than that of the general student-athlete population. While locker room surfaces can harbor MRSA, artificial turf can as well. The abrasive nature of synthetic turf along with sheltered MRSA in the turf and infill can make athletes and kids more vulnerable (Keller 2020). Synthetic turf requires bacteriocidal chemicals to reduce bacterial growth on fields and infections in players. These liquid turf cleaners can be toxic and may pose risks to the health of workers, children, and surrounding ecosystems. Bacteriocides have been shown to act as skin sensitizers (Hahn 2010).

Health Risks
Working in the tire industry exposes workers to some 50 chemicals many of which are toxic. Occupational studies indicate an association of working in the manufacture of tires to bladder cancer, emphysema, esophageal cancer, larynx cancer, leukemia, liver cancer, lung cancer, multiple myeloma, pancreatic cancer, prostate cancer and stomach cancer. Most chronic diseases caused by occupational toxins don't appear until 10 to 40 years after first exposure.
Also, if crystalline silica is used as infill, then athletes can inhale fine dust from the breakdown of this substance. The occupational literature is consistent in showing an association of silica inhalation with lung cancer and other lung diseases. Chronic silicosis, an inflammatory lung disease, can occur after 10 or more years of exposure to inhaled crystalline silica. This particular infill has not yet been tested for safety.

Cancer is another concern for athletes and children playing on artificial turf. Although there are no studies to date associating an increased risk of cancer to artificial turf many questions remain about exposure to carcinogens on these fields.

Localized Heat Islands
Artificial turf fields significantly exceed temperatures of natural turf, at times 40 to 60 degrees higher than living grass. grass. Even with moderate air temperatures artificial sports fields become heat islands, due to increased solar absorption and energy retention, as well as a lack of cooling water evaporation that natural grass provides. These higher temperatures can cause heat stroke, heat exhaustion, poor athletic performance and skin burns, making these fields potentially unusable under certain weather conditions. Irrigating the fields with water reduces temperatures, an effect that lasts for less than 20 minutes, according to research performed by Penn State Center for Sports Surface Research (Abraham 2019; Claudio 2008; NPRA 2019).

Attempts to alter turf materials to reduce surface temperatures have not been successful to date. Games can be cancelled if temperatures are too high. After an athlete suffered a heat burn from artificial turf in Utah, Brigham Young University performed a study on the artificial turf and found that the artificial turf temperature was 87 °F hotter than natural grass (Williams and Pulley 2002). A temperature recorded on an artificial turf was 200°F, well above that which would cause a skin burn. Buskirk (2002) measured temperatures for 24 days on artificial turf, natural grass and in air and recorded turf temperatures that were 50 °F higher than natural grass temperatures and reached 70 °F higher than the air temperatures.

A University of Missouri study showed "elevated air temperatures (138 °F) and elevated turf temperatures (173 °F) – while adjacent natural turf temperatures were 105 °F and local air temperatures were 98 °F". (Abraham 2019) Public schools have developed heat guidelines for playing on synthetic sports fields. (National Recreation and Park Association (NRPA) 2019) As global temperatures rise with climate change the heat effects of artificial turf is an ever-increasing concern.

Plastic Waste
There are over 16,000 artificial playing turfs in the US and about 1500 are added yearly. The synthetic turf industry recycles about one-twelfth of the 300 million auto tires that are withdrawn from use each year. An average soccer field of 80,000 square feet can use 27,000 crushed tires for infill at 4-15 pounds per square foot, equivalent to 320,000 to 1 million pounds of infill along with 40,000 pounds of plastic (Claudio 2008). Synthetic turf fields have a lifespan of 10 to 12 years. Thereafter the material must be disposed of and typically it is landfilled.

Cost of Synthetic versus Natural Turf
While the narrative has been that artificial turf costs less, an analysis of the entire life cycle of artificial turf versus natural grass confirmed that using natural grass was cheaper in the long run (Daviscourt 2017). This 2017 study noted, *"The results of this case study support what has previously been estimated in the literature: synthetic fields cost more to install than natural turfgrass fields... The average cost of the life-cycle analysis for natural grass was $821,000 and for synthetic infill was $1,767,000.'* The University of Arkansas came to the same conclusion noting increased maintenance costs of artificial turf. The costs for artificial fields included:

- **Installation Costs:** More extensive subgrade work for artificial fields
- **Annual Maintenance**: Additional infill, irrigation for high temperatures, chemical disinfectants, sprays to reduce static cling and odors removal of organic matter, erasing and repainting temporary lines, irrigation because of unacceptably high temperatures on warm-sunny days
- **Replacement Costs** of synthetic turf vs grass
- **Disposal costs:** Due to complex plastic components a special disposal fee is often needed.

Mental Health and Wellbeing: Synthetic Turf Displaces Natural Green Space
Use of synthetic fields displaces natural green spaces which are also important to the health, development and wellbeing of children and adults. The tactile and sensory benefits of real grass are lost with artificial turf. Natural green spaces can reduce stress and improve wellbeing. (Zhang 2020) notes, *"It is evident that time spent in, or exposure to, green space can improve positive mood and emotions, provide a retreat from daily hassles, and reduce the risk of psychological and physiological stress in adolescents. There is also evidence of lasting mental health benefits of green space exposure in childhood."*

"Today's children largely grow up in synthetic, indoor environments. Now, with the growing popularity of synthetic turf fields, their experience with nature will be less than ever." (Claudio 2008) Athletes by far prefer playing on real grass (Owen 2016)

Policies to Ban Artificial Turf or Components

The concerns for harmful plasticizers and microplastics in artificial turn, long term effects on children's health as well as life cycle analysis have led to policies to ban artificial turf altogether as well as ban specific toxic components. Zucarro (2022) reviewed policies on synthetic turf and wrote, *"While nearly every country acknowledges the potential health risks posed by heavy metals, microplastics, PAHs, and PFAS chemicals, very few have actually implemented artificial turf and crumb rubber infill regulations and/or established adequate surveillance measures to protect those regularly exposed to the fields."*

- **Westport, Connecticut** banned crumb rubber in 2017 and passed an "Ordinance prohibiting the application of synthetic infill material on playing fields on town property," David Brown, a Westport resident with a doctorate in toxicology from Harvard University, formerly headed up a toxicology group at the state health department. He testified in favor of the synthetic infill ban and stated, *"The primary problem with turf is the off-gas from particles that contain toxic and carcinogenic chemicals. When people ingest the crumb rubber, the toxic chemicals are released in their body."*

- In 2021 the **European Union (EU)** expanded the scope of restriction of the eight polycyclic aromatic hydrocarbons (PAHs) in infill material in synthetic turf use on playgrounds or sports fields.
- **Boston banned artificial turf** in parks due to toxic 'forever chemicals in 2022.
- **Holland** is banning crumb rubber infill on artificial turf fields due to soil pollution under the turf.
- **California AB 1423** is moving through the 2023 legislature process. The bill proposed will ban the manufacturing and sale of artificial turf containing some hazardous PFAS compounds.
- **California SB 499 (2023**), **The School Extreme Heat Action Plan Act of 2023**, also moving rapidly through the legislature, would require all school sites, the next time outdoor surfaces are resurfaced or replaced at the school site, to replace low specific heat surfaces, such as cement, asphalt and synthetic turf, with high specific heat surfaces, such as natural grass.

Benefits of Natural Grass

Turfgrass is a living organism and thus can provide environmental benefits (STMA). They cool the surrounding areas including homes and can help control soil erosion and run off. Carbon sequestration is another benefit. It is estimated that net carbon sequestration rates in urban lawns are between 200 and 1,800 lbs of carbon per acre per year. Research modeling of carbon sequestration by lawns indicates "*lawns in the United States alone can sequester between 12.5 million and 95 million tons of atmospheric carbon dioxide per year. That's equivalent to the annual emissions of between 2.4 million and 18 million typical passenger vehicles.*" Sports fields compared to lawns or parks are not a carbon sink due to higher maintenance and operations. The University of Oregon has been researching this and recommends several management practices for irrigation, fertilization, and mowing which can help transform them into a neutral or carbon sink while also maintaining healthy turf.

Conclusion

There has been no proof of safety for artificial turf fields and many data gaps. There is growing evidence that the health and safety risks outweigh the benefits of artificial fields. It appears that natural grass is less expensive when a full life cycle analysis is performed. Considering that studies on the risks of long-term health have not been performed, along with absence of comprehensive data on the hazardous chemical components of artificial fields we recommend 1) not to place artificial turf on playing fields and 2) should artificial turf already be present, to replace this with natural grass.

Sincerely,

Dr. Anlin Xu,
President, Santa Clara County Medical Association

CEO/Executive Director
Santa Clara County Medical Association

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From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date:	Monday, December 11, 2023 9:01:39 AM
Attachments:	FILE_9946.pdf image.png

From: D Woelke <dmwoelke@gmail.com>
Sent: Friday, December 8, 2023 4:16 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Attached please find out comments for the public record for the 13 December 2023 meeting, Item 13.1

University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf)

Dianne Woelke MSN, Board Member
Safe Healthy Playing Fields, Inc.
https://www.safehealthyplayingfields.org
SHPFI is an all-volunteer nonprofit 501-c-3

California Coastal Commission
13 December 2023

University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf)

California Coastal Commissioners and staff:

The organizations signed below applaud the staff report and strongly urge a **YES** vote on Cesar Uyesaka Stadium:

We thank the staff for recognizing Special Condition One (1) is crucial to coastal environmental health.

> *"Special Condition One (1) requires the University to submit Final Revised Project Plans that include the installation of natural turf – as opposed to artificial turf – at the subject site and addressing any additional site improvements required for the same."*

A **YES** vote will:

- Protect the environment from known toxic chemicals and microplastics from synthetic turf, thereby also protecting human health.
- Hold UCSB to conditions set forth in their Long Range Development Plan (LDRP).
- Require reduction of total impermeable surfacing.
- Hold UCSB to their policies and programs on greenhouse gas emissions reduction, and the use of non-renewable resources, sustainability programs including Green Building, Climate Protection, Waste Reduction and Recycling and Environmentally Preferable Purchasing. Water conservation can be achieved with professional installation and organic management of newer natural grass hybrids designed for drought tolerance and high intensity play.
- Will recognize that petrochemical synthetic turf is not an environmentally superior choice.
- Follow the science.

Synthetic turf requires significant maintenance, if for no other reason than to keep the warranty in effect.

UCSB can have a playing field that does not need to be rested seasonally and will last some 30 years without replacement. With professional soil testing for chemical and textural analysis, as well as foodweb bioassay, professional selection of either seed (better results) or sod installation, proper organic natural turf management and maintenance adjustment to suit hours of use can ensure success.

Organic management is not a product swap and proper training is available. Costs decrease significantly by year three to five. Electric maintenance equipment (even chalk markers) will further enhance a safe, natural, sustainable environment for students and staff alike.

Newer hybrid natural grass, tailored for the local soil conditions, will also allow a marked reduction in water usage. Winter dormancy is a natural condition and athletes are not playing on dead grass or soil, but rather the thatch that has built up. Newer hybrids coming online stay green in the winter, for those who think that a field that is dormant in winter doesn't meet their expectations for year round green grass.

Excessive watering in the winter months is not the answer, but indicates that proper training in organic natural turf grass management is needed.

We do ask that discrepancies in the staff report be corrected prior to a vote and signature. These include:

- Page 6, final ¶ incorrectly states *"…a two inch layer of **permeable** artificial turf, a **permeable** layer of "ProPlay"* pad…"
  Change to ***impermeable.***

- Page 6, final ¶ incorrectly states *"…polyethylene grass fibers woven into a fabric base layer…"*
  Change to base layer is made from polyurethane, latex or polyvinyl chloride.

- Page 7, ¶ 1, 1st sentence *"Onsite stormwater would be able to pass through the upper layers of the artificial turf field…"* This statement is not in alignment with the science, The entire system is considered **impermeable**. Page 7, ¶ 1, *"The mid-layer Pro[P]lay pad of the proposed artificial turf field would be **permeable** to water but would also function as a filter to prevent infill and grass fragments from passing through."*
  Statement needs to be corrected to read the entire synthetic turf system is impermeable.

  The above statement as written does not reflect:

The best BMP, even with drain filters, will capture a small percentage of microplastics and virtually none of the PFAS lost from all components, including the proposed yellow knotty pine BrockFill. Calculations in our initial letter noted nearly 1,000 pounds of used tire crumb lost to surface water annually. The reality is, BrockFill floats. It contains PFAS. Nutrients from plant based infills are implicated in red tides and toxic algal blooms.

Microplastic blade loss to air, water and soil would be between 224.2 and 1,066.3 pounds per year

Microplastics from the base layer of the plastic carpet is estimated to be 438 pounds/year (2023)

We ask that staff incorporate an acknowledgement that Best Management Practices would not prevent contamination of air, water and soil from microplastics, chemicals and excess nutrients from plant based infill.

- Page 7, ¶ 2 *"…the proposed artificial turf field would not require irrigation…Full-field washdowns would not occur at the proposed field."*

  This statement is not reflective of sound practice. Cleaning of synthetic turf is generally a condition of warranty. To not remove biological fluids, animal droppings, and leaded AVGAS and other pollutants, not only from the proposed field, but all synthetic turf installed on the UCSB campus (including childcare areas) is unconscionable. This also applies to not cooling a plastic surface to a playable temperature to avert burns and heat related illness up to and including death.

  "…the notion that it is "maintenance free" is wrong.To keep your field performing at the highest level, routine care and maintenance must be followed…Your synthetic field comes with an AstroTurf Warranty. The Warranty itself is directly related to the maintenance performed on your field. The Warranty can be voided if your field is improperly maintained, abused, over-used, or neglected."
  https://astroturf.com/maintenance/
  https://issuu.com/asttroturf/docs/astroturf-maintenance-brochure-2023

- Page 7, 2nd ¶, last sentence: false statements include *"…flame retardants would not be used on the field (which is not flammable).*

  We ask that staff include a disclaimer that the University makes the statement on page 7 not the staff, and is inconsistent with the statement on page 15, ¶ 2.

  Flame retardants are used in manufacturing, and despite this, synthetic turf is flammable. Additionally, wood infill is obviously flammable. BrockUSA has only tested "flammability" to 40ºC (104ºF).

- Page 15, ¶ 2. *"University **confirmed** that there would be no cleaning, conditioning, or sanitizing of the artificial turf field and that flame retardants would not be used on the field (which is not flammable). Material testing and specifications provided by the University **confirmed** that neither the proposed turf nor the proposed fill would contain hazardous PFAS compounds often associated with artificial turf fields, and **confirmed** that the proposed untreated woody fill material ("BrockFill") would present no additional concerns in relation to chemical composition."*

  We ask that the staff report wording be changed from "confirmed" to "reported and confirmed."

  The rationale for requesting this change is that they are false statements. We are well aware of the "no PFAS" games played, which often include manipulating the tests ordered as well as the results. We look forward to receiving these results from UCSB.

- Missing reports: project specific water quality analysis, WQHP, material testing for all of the proposed field materials analyses detailing artificial turf material degradation rates, anticipated microplastic transport rates, anticipated efficacy of microplastic retention strategies and any other information as required by the Commission should be made available on the Commission website.

  We disagree with all claims of PFAS free materials and have included testing results for the proposed shock pad and infill, both of which contain PFAS. We intend to have an unpaid, expert, third party review of the claims that the AstroTurf brand is PFAS free. Synthetic turf has not been PFAS free since its early days and produced an even more inferior product that resulted in more brittle blades. PFAS is required for extraction of the plastic yarn through machinery to prevent sticking.

  The Commission requested confirmation of recycling from the University. We acknowledge the University will not be able to provide proof of recycling, as there is none. We have provided documentation below that AstroTurf "repurposes" old fields, which generally means they sell or donate the entire field or sections, passing it off to more unsuspecting consumers.

We thank staff for the correction of identified deficiencies in this staff report. Provision of accurate details in such a significant public document is of the utmost importance.

We wholeheartedly support the staff recommendation and urge you to pass the NOID expeditiously.

Respectfully submitted,

Dianne Woelke MSN, Board Member

Safe Healthy Playing Fields, Inc.
https://www.safehealthyplayingfields.org
SHPFI is an all-volunteer nonprofit 501-c-3

Diana Carpinone, President

Non Toxic Communities
https://www.nontoxiccommunities.com

Suzanne Hume, Educational Director & Founder

CleanEarth4Kids.org
https://CleanEarth4Kids.org

Dr. Ronald Askeland, SD-SEQUEL Coleader

San Diegans for Sustainable, Equitable, & Quiet Equipment in Landscaping
http://sd-sequel.org

Nancy Okada, Chair

Sierra Club CA Coastal Subcommittee
https://www.sierraclub.org/california/cnrcc/water

Anna Christensen, Co-Chair

Los Cerritos Wetlands Task Force, Angeles Chapter, Sierra Club
https://angeles.sierraclub.org/los_cerritos_wetlands_taskforce

Susan Kirks, President

Susan Kirks

Madrone Audubon, Sonoma Co.
https://www.madroneaudubon.org

Vanessa Armstrong, Co-Chair

Moms Advocating Sustainability
www.momsadvocatingsustainability.org

Jay Feldman, Executive Director

Beyond Pesticides
https://www.beyondpesticides.org

BEYOND PESTICIDES

Rika Gopinath, Chair

Rika Gopinath

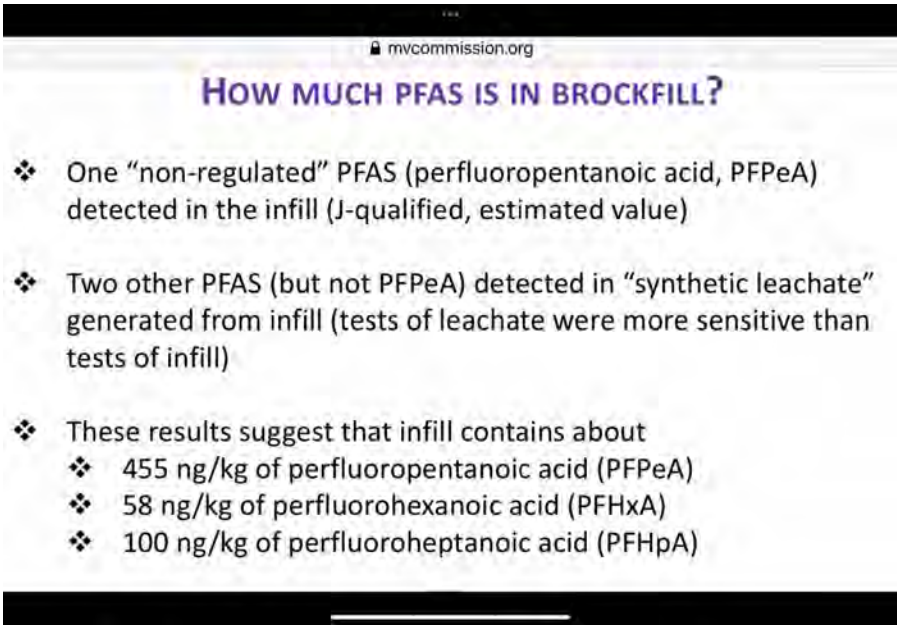
Yard Smart, Marin
https://www.yardsmartmarin.org

Stop. Think. Protect.
YardSmartMarin.org

***SUPPORTING DOCUMENTATION*:**

Loss of BrockFill infill with rain:

PFAS in BrockFill:



BrockUSA shock pad shown to contain PFAS (26 ppm [parts per million] total organic fluorine (TOF):

Report prepared for:
Nichole Hunt
Alpha Analytical Labs
8 Walkup Dr
Westborough, MA 01581
Email: nhunt@alphalab.com, subreports@alphalab.com

Report prepared by:
Debbie S Robertson

Purchase Order:

For further assistance, contact:
Debbie S Robertson
Report Production Coordinator
PO Box 51610
Knoxville, TN 37950 -1610
(865) 546-1335
debbierobertson@gaibraith.com

Sample: Brock Shock Pad
Lab ID: 2021-M-7028 **Received:** 2021-01-21

Analysis	Method	Result	Basis	Sample Amount Used	Date (Time)
F : Fluorine					
	GLI Procedure E9-3	26 ppm	As Received	209.33 mg	2021-01-25

For all samples on this report:
1. Amended Report: This report amends data included in report 128242

Signatures:

Published By:	Debbie.S.Robertson	2021-02-01T17:14:52.777-05:00
Created By:	Debbie.S.Robertson	2021-02-01T17:14:43.37-05:00

- Physical signatures are on file.
- "Published By" signature indicates authorized release of data.

Backing of FieldTurf synthetic turf and Proplay shock pad, shown to contain PFAS: 16ppm TOF in carpet backing; 61ppm TOF in shockpad:

Sample: 275792-A Ports Mouth NH -Turf Backing
Lab ID: 2021-N-9399 **Received:** 2021-07-21

Analysis	Method	Result	Basis	Sample Amount Used	Date (Time)
F : Fluorine					
	GLI Procedure E9-3	16 ppm	As Received	202.22 mg	2021-07-22

Sample: 275794 -Shock Pad
Lab ID: 2021-N-9400 **Received:** 2021-07-21

Analysis	Method	Result	Basis	Sample Amount Used	Date (Time)
F : Fluorine					
	GLI Procedure E9-3	61 ppm	As Received	216.20 mg	2021-07-22

Trancribed testimony of unpaid expert analytical chemist Kristen Mello, MSc on PFAS in Synthetic Turf:

sonix

NAME
Kristen Mello testimony for DRI 352-M4 2021-3-4.m4a

DATE
September 4, 2022

DURATION
11m 37s

START OF TRANSCRIPT

[00:00:02] Speaker1
Thank you, commissioners, for accepting my testimony and my thanks to your staff for all of their assistance. I'm sending this recording because your meeting schedule conflicts with my own. For the record, I received no offer, real or implied, of compensation in return for this testimony, and I have no financial interest in the outcome of your proceedings. My name is Kristen Melo. I live in Westfield, Massachusetts, and I'm the director and co-founder of Westfield Residents Advocating for themselves. Indulge me a moment for background. I'll tell you why I'm sticking my nose in your business. I was born and raised here in Westfield, which used to be exit three off the Mass Pike. I went to UMass Amherst for my bachelor's degree in chemistry and the University of Delaware from a master's degree in analytical chemistry specializing in chemometrics. I did not start out as an activist. In the fall of 2016, I was helping my brother raise his daughters when we found out that our water was contaminated with per and polyfluoroalkyl substances. As one of my nieces at the time was a formula fed only infant, we boiled the water to ensure its safety. Unfortunately for us, boiling the water concentrated the PFAS we'd been giving her, and that's how I became an activist. So the data driven background, I started finding out everything I could. I was told that Barnes Air National Guard Base, home of the 104th Fighter wing base, from which my father retired, was the point source of our PFAS contamination from years of fire training with aqueous film forming foam.

[00:01:25] Speaker1
Something I think you can understand: Our city is divided by a river. All of our north side municipal drinking water wells are contaminated, and we have a few environmental justice communities. So while I could have protected my family by installing a reverse osmosis system for cooking and drinking water, there were many in our community who could not or were not even aware of the problem or danger. Instead, WRAFT,formed in my living room on a February night in 2017 in response to this contamination, aimed at education and advocacy for our community. WRAFT also lobbied hard for Westfield to be included in one of the first exposure assessments conducted by the Agency for Toxic Substances and Disease Registry. ATSDR took the blood of 459 Westfield residents in September 2019. 92% of participants had higher PFAS levels in their blood serum of at least one of the PFAS tested than the average American. It is from this background and with this history that I respectfully offer the following for your consideration with references included in the written text for your convenience. Without going deeply into it...First, in general, PFAS have a structure with a functional group head and a comparatively non reactive fluorinated alkyl tail that repels both water and oil.

[00:02:40] Speaker1
These compounds are persistent, bio accumulative toxic and bio magnify in the food web. On toxic, I will get into more detail about, but by way of definitions, persistent, as in resistance to degradation, not easily broken down into safe components in the environment or in organisms. Bio-accumulative, as in organisms take them up faster than they can process them out. And bio magnify, meaning concentrations increase as you move up the food web. Modern artificial turf fields and their components are made with PFAS. PFAS are used to aid in the extrusion process of the turf carpet fibers. In some cases, PFAS are also used as co-monomers in the synthesis of the plastics that then get extruded into carpet fibers with the PFAS lubricant. In a very loose breakfast metaphor, sometimes the stuff is used as an ingredient in the waffles, and sometimes it's just used to coat the waffle iron plates. But either way, since all waffles get cooked on the coated waffle irons, the resulting vinyl waffle will give you PFAS into your water. In addition, artificial turf field underlayments can...also have been made with PFAS, particularly if their purpose is to prevent direct infiltration of stormwater, organic contaminants, turf cleaning and conditioning agents, pesticides and any anti mold, anti bacterial and antifungal agents that get applied to the carpet and infill during maintenance.

[00:04:01] Speaker1
I was relieved to see that PFAS testing had been ordered for the MVRHS proposed fields, turf and system components. Despite the limitations of EPA certified protocols and issues, the chain of custody and the sample size and the matrix effects and the surrogate recoveries results from both rounds of testing revealed PFAS. Round one PFAS test results revealed detectable PFAS concentrations for PFBA, PFPPA, PFHxA, PFHpA, PFOA, PFDS and 6:2FTS. Now for noting, but unrelated to last, round one also found significant doses of the plasticizer Bis-(2-ethylhexyl) phthalate and phenol in the artificial turf and phenol, 2Methylphenol, 3Methylphenol, 4Methylphenol, 2,4-dimethyl phenol and benzyl alcohol in the Brockville. All these compounds could leach into storm water and groundwater. Some of these compounds may be naturally occurring where the Brockville trees are grown, but their addition to your stormwater and groundwater could well disrupt your local ecosystem in ways you have not considered. Round two tests revealed more of what round one could not. Significant PFBA concentrations post oxidation for all samples; significant PFHpA post oxidation with the BrockFill and significant PFPpA post oxidation for the ultra bond. The total organic fluorine analysis revealed 70 parts per million total organic fluorine from the turf field.

[00:05:28] Speaker1
Carpet results were not achieved for the shock pad, so there's no indication of how much PFAS that would contribute to your aquifer. Because the calibration requires available analytical standards, many of these proprietary PFAS compounds can't be quantitatively tested for. We can only quantitatively test for a fraction of the likely 10,000 PFAS currently in use. So what do these results tell us and not tell us? The results tell us that the installation of this preferred proposed artificial field turf system will place a point of PFAS discharge onto your irreplaceable, fresh water, sole source aquifer. The results do not tell us the background level of PFAS in soils at this area. As Dr.Green rightly points out, the background levels of PFAS and soils in New England cannot be assumed to be zero. The PFAS test results do not indicate the total mass of contaminants that you are considering adding to the aquifer. The Laboratory Results report concentrations of PFAS extracted from less than one half pound sample of each component. The amount to determine the amount of PFAS that you would be depositing into your aquifer. You must multiply these values out across the mass of the entire installation, including all the components and the replacements over the coming decades. With respect to fate and transport, these PFAS compounds will move, especially the short chain ones, potentially affecting groundwater and surface water miles away.

[00:06:57] Speaker1
Aquatic life, including shellfish down gradient, may experience uptake of fast contamination and toxic effects. This is a particularly important concern when fish and shellfish exposed to fast contaminated waters are then consumed by people as the islands, fish and shellfish certainly are. When it comes to PFAS exposure and toxicity, PFAS bioaccumulate in the blood and tissues and biomagnify in the food web. Nobody gets exposed to only one PFAS. Real world PFAS contamination is always a mixture of them and PFAS mixture toxicity research is still unfolding. PFAS single compound toxicity studies are plentiful and ongoing. Because these compounds are endocrine disruptors, there are many non-lethal end points of concern. There have been studies reporting that exposure to some PFAS, for example, may increase the likelihood of obesity, reduce both sperm count and penis size, increase the incidence of pre-eclampsia, and can affect the ability to breastfeed. Even worse for pregnant mothers, PFAS are known to transfer from mothers to babies through the placenta and cord blood and breast milk. PFAS exposure has been linked to reductions in antibody response and disease resistance and increases in airway hypersensitivity, asthma and risk of autoimmune disease. PFAS that build up in the lungs include the short chain PFBA, PFPpA, PFHxA PFBS and the longer chain PFHxS, PFHpA, PFOA, PFOS and PFNA and PFDA and PFDS.

[00:08:29] Speaker1
Only the 6:2FTS found in your study is not on the list of PFAS that are found to reside in lung tissue. And if nothing else, I say to you matters, please hear this: Elevated plasma PFBA concentrations were associated with an increased risk of a more severe course of COVID 19, including increases in hospitalizations, ICU stays and deaths. The thing is, the regulations always chase after the pollution. So residents are depending on the commission to think this through. It is likely the applicant just wanted the most durable field for their athletes. But the Commission must examine the potential unintended consequences. A choice to install this option would be, after tremendous deliberation, intentionally choosing to install a point source of PFAS contamination into your island's freshwater sole source aquifer. What's worse, a point source of PFAS that the current [US] EPA certified analytical methods probably cannot even completely identify or quantify. This PFAS will migrate, transported in stormwater and groundwater off the MVRHS site and will be taken up by plants and animals in the ecosystem affecting drinking water and water used for agriculture and aquaculture. Bioaccumulating in the plants and animals that are exposed to it and biomagnifying along the food web as those plants and animals are consumed. Choosing to permanently pollute your aquifer with PFAS could potentially result in economic losses and expose you to lawsuits.

[00:10:07] Speaker1
Your decision could affect eat local movements, food production, property values and tourist dollars. Since you cannot rely on the assumption that background PFAS concentrations in the area that this field is installed is zero, please consider that the PFAS from this field installation would add to any PFAS in the groundwater. What if this choice causes the local wells to exceed the Massachusetts MCL of 20 parts per trillion for the sum of six PFAS? What if next year MASS DEP adds more short chain PFAS to the combined MCL and you find yourself in violation of regulations after the fact? In addition, because you knew to perform the PFAS testing in the first place, approving the installation of this artificial turf field system would be knowingly and intentionally allowing manmade, persistent, bio accumulative toxic compounds into the drinking water of thousands of people in violation of their rights under Article 97 of the amendments to the Massachusetts Constitution added in 1972. Article 97 says The people shall have the right to clean air and water. It doesn't say the people shall have the right to filtered water or the people shall have the right to water with PFAS. We haven't identified yet the rights and freshwater needs of the many outweigh the field preferences of the comparatively few. Thank you again for considering this information carefully.

END OF TRANSCRIPT

Letter sent from trade association Synthetic Turf Council President and CEO to Sen. Ben Allen; admission to PFAS in synthetic turf:

Thank you for your interest.

As promised here is the oppose letter from the Synthetic Turf Council.

Staffer Email: Grayson.Doucette@asm.ca.gov

Best,

Carlos Gutierrez
Legislative Aide
Office of Assemblywoman Pilar Schiavo
Assembly District 40
916-319-2040
Room 4140

June 21, 2023

Ben Allen, Chair
Environmental Quality Committee
1021 O Street, Suite 3230
Sacramento, CA 95814

Dear Senator Allen:

On behalf of the Synthetic Turf Council (STC)and its members, we must respectfully "Opposed Unless Amended" AB 1423 (Schiavo), which restricts the use of perfluoroalkyl and polyfluoroalkyl substances (PFAS) in artificial turf. STC members include builders, landscape architects, testing labs, maintenance providers, manufacturers, suppliers, installation contractors, infill material suppliers and other specialty service companies.

As currently drafted, AB 1423 creates significant compliance challenges for artificial turf manufacturers and suppliers for the following reasons:

1) The bill a ban on the sale of artificial turf containing intentionally added PFAS on January 1, 2024 to certain public entities and by January 1, 2025 for all sales in California. These dates do not provide enough time for manufacturers and suppliers to develop viable alternatives for the market place. We request that both dates be changed to January 1, 2026, which is in-line with other PFAS legislation currently pending.

2) The bill also intends to regulate levels of unintentionally added PFAS to 1 part per million (PPM) in total organic fluorine. While our manufacturers and suppliers fully intend to comply with the provisions of the bill related to intentionally added PFAS, we are concerned that trace quantities of a chemical may be present in natural or synthetic ingredients, recycled content, manufacturing processes or equipment. Therefore, we believe it would be more prudent (in addition to allowing for testing protocols to be developed) to establish the compliance threshold for unintentionally added PFAS at 100 PPM beginning in 2026 and 50 PPM in 2028. These thresholds have been previously recognized by the legislature in AB 1817 (Ting) (2021) and AB 652 (Friedman) (2021).

We urge the committee to consider these amendments to ensure that businesses can remain in compliance while serving its California customers.

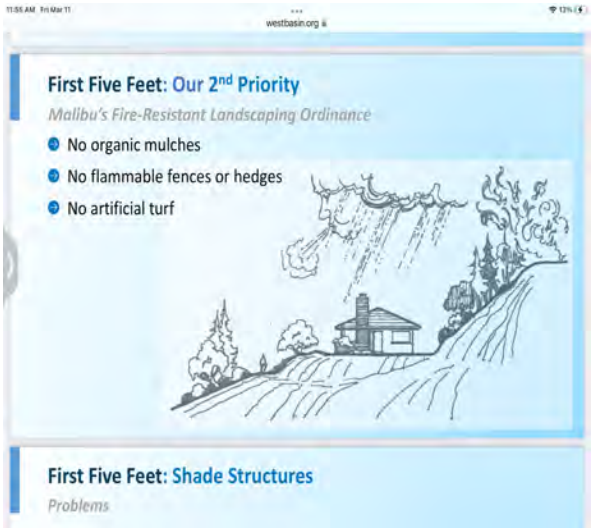
Sincerely,

Melanie Taylor, President & CEO, Synthetic Turf Council

Flammability of synthetic turf; Flame retardants used in manufacture:

TARKETT – Field Turf

Fire resistant artificial
Patent number: 8986807
Type: **Grant**
Patent Publication Number: 20120263892 Assignee: Tarkett Inc. (Quebec)
https://patents.justia.com/patent/20120263892



"Flammable landscaping material such as shredded bark and artificial turf are prohibited within five feet of a structure. Wood chips and shredded rubber are prohibited anywhere on site." https://malibutimes.com/article_a2687208-2608-11eb-ba55-f31b8b4f178b

According to Omroep Brabant, TUF Recycling was discredited in the past for violating several laws and environmental laws. The company stored more artificial grass mats than allowed, and illegally transported mats abroad. The municipality imposed multiple penalties on the company in the past. TUF Recycling was a topic of discussion on the city council's agenda for Thursday.

https://nltimes.nl/2018/10/12/large-fire-brabant-artificial-turf-company

Plastic turf in Sutton County

Used turf storage facilit

Received 17 Feb 2022 from City of Los Gatos, CA (re: Creekside Park synthetic turf end of life plans)

AstroTurf does not recycle (there is NO recycling anywhere- only repurposing or chopping up old fields for incorporation to toxic chemicals/components in otherproduct or export for toxic "advanced chemical recycling (burning):

TOWN OF LOS GATOS

AstroTurf Corporation

THE WORLD LEADER IN SPORTS & RECREATION SURFACES

AstroTurf FIELDS · Rekortan TRACKS · Laykold COURTS · SYNLAWN LANDSCAPE

AstroTurf contracts with a third-party who specializes in the proper re-use of synthetic turf as part of its end-of-life cycle. The contractor re-uses the synthetic turf in various installations. None of the synthetic turf or infill will end up in a landfill after it is removed from its current installation.

AstroTurf and cancer causing PFAS:
https://www.totalprosports.com/mlb/investigation-phillies-astroturf-deaths-six-former-players/

https://www.inquirer.com/news/phillies-daulton-cancer-artificial-turf-pfas-veterans-stadium-20230410.html

https://www.businessinsider.com/forever-chemicals-found-turf-phillies-old-stadium-2023-3

Monsanto patent for ChemGrass, later renamed AstroTurf
https://patentimages.storage.googleapis.com/cc/f1/db/13509a69e1992b/US3332828.pdf

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Subject: Endorsement for UCSB Synthetic Turf Project
Date:	Monday, December 11, 2023 9:03:07 AM
Attachments:	UCSB AstroTurf Project.pdf

From: Andrew Checketts <checketts@ucsb.edu>
Sent: Friday, December 8, 2023 4:57 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Subject: Endorsement for UCSB Synthetic Turf Project

Dear Members of the California Coastal Commission,

I am writing to endorse the synthetic turf project at UCSB, where I actively contributed as a member of the planning team. Our project is designed to deliver a safe, consistent, and community-centric playing surface with the following considerations:

- **Player Safety:** A paramount concern, our synthetic turf selection significantly improves the consistency of play and will not result in increased injury risks, offering a reliable and safe playing surface for athletes. Recent research regarding non-contact, lower body injuries on synthetic surfaces in football and soccer indicate lower injury rates (for soccer) and similar injury rates (for football).
- **Baseball Specific Playing Surface:** The inclusion of a specialized baseball surface reflects our dedication to athlete-centric design, ensuring optimal performance and safety.
- **Expanded Training Opportunities:** By nearly eliminating the need to close the field for over-seeding, annual maintenance, and inclement weather, the project opens up avenues for expanded training, contributing to increased athlete opportunities and while increasing the overall opportunities for youth participation via increased camp and clinic offerings.

Alternative field options (grass) require heavy water usage, applications of harmful pesticides and fertilizers, as well as the use of gas powered machinery. Our selection of synthetic turf eliminates those needs.

Due to the challenges of using reclaimed water exclusively for irrigation, no Major League team plays on an all-organic grass surface. Six current MLB teams play on synthetic turf (including both World Series finalists), and every MLB team in California utilizes potable water to irrigate their playing surfaces.

Other, high level Division I baseball programs across the country utilize synthetic turf for their stadiums, including Vanderbilt, Tulane, Oregon, Washington, Oregon State, Texas, Louisville, Kentucky, Dallas Baptist, UCLA (newly installed practice infield utilizing Astroturf and an organic infill), and Santa Clara (January 2023 installation

utilizing Astroturf and an organic infill).

Environmentally conscious decisions have been made including the following:

- **Drainage and Microplastic Migration Mitigation:** Meticulous planning includes drainage systems and a fully enclosed field to mitigate microplastic migration.
- **Water Conservation:** Our project significantly reduces water usage, both reclaimed and potable, addressing regional concerns and demonstrating responsible resource management.
- **Brockfill Selection:** We have chosen Brockfill, an organic and sustainable infill, striking a balance between high-performance and minimal environmental impact.
- **PFAS-Free Astroturf:** PFAS-free Astroturf, utilizes “Root Zone” technology to minimize infill migration.

I respectfully request that the Commission remove the condition (requiring grass) and vote yes for this project.

Thank you for your attention.

Sincerely,

Andrew Checketts
Head Baseball Coach
UC Santa Barbara

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Sincerely,

Andrew Checketts
Head Baseball Coach
UC Santa Barbara

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date:	Monday, December 11, 2023 9:02:04 AM
Attachments:	Public Comment on December 2023 Agenda Item Wednesday 131a University of California Santa Barbara Notice of Impending Development No UCSNOID000223 Baseball Stadium Turf.pdf Statement on PFAS.pdf Sierra Club Comments.pdf AB-1423-VETO-1.pdf

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From: Pat Cassa <patcassa33@gmail.com>
Sent: Friday, December 8, 2023 4:21 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

My name is Pat Cassa, I work for AstroTurf in Southern California and I'm writing today with regard to the pending project for UC Santa Barbara. I will be in attendance at the hearing, and happy to answer questions or assist in anyway possible.

First, I would like to address who AstroTurf and our Ownership (Sport Group) are, and what we emphatically believe. We are dedicated to sustainability, responsible manufacturing and delivering safe places for everyone to play. Sport Group (German owned) is on the front lines in Europe and has brought those practices here, which has put Astroturf at the forefront in innovation and sustainability. With a top ESG score (Top 5% internationally), Sport Group and AstroTurf are not only a global leader in manufacturing, but also an industry leader when it comes to the environment and sustainability. As the inventor of the synthetic turf industry, we have taken it upon ourselves to advance technology both in performance and sustainability and have brought that here to UC Santa Barbara.

Here is a link to our sustainability page: https://astroturf.com/technology/sustainability/

Many considerations were taken to create a turf system that not only exceeded performance standards for an NCAA Division 1 Baseball program, but also check the boxes that were important to the community with regard to synthetic turf and the surrounding environment. This is not your typical synthetic turf field, and we are not your typical turf manufacturer.

On the subject of PFAS, AstroTurf can unequivocally say that we do not introduce PFAS at all during the manufacturing process. I have attached a letter for reference and our position on this. The selected organic infill, Brock Fill, also does not contain PFAS. We are not and NEVER were intending to use the recycled crumb rubber.

However I think it's important to address that PFAS is inherent in the environment (soil, rain water and water in general) as well as in MANY household everyday items. Here is a link to a recent Time

Magazine article demonstrating this reality:https://time.com/6281242/pfas-forever-chemicals-home-beauty-body-products/

I would also like to address the comments made in opposition at the last hearing. I have included the original cover page with the bullet point comments made, which to my understanding prevented this project from being approved, and has now changed direction. Responses below are in order and are the real facts pertaining to this specific project.

- AB1423 was vetoed by Governor Newsom in October. I have also included the Governors response to the bill.
- SB499 did not move out of the Appropriations Committee and will likely not be considered again for years.
- Mitigation of Microplastics was thoughtfully taken into consideration with the products and design, I believe that has been well demonstrated.
- 6PPD in tires: We are not using crumb rubber
- PFAS in synthetic Turf: We do not introduce PFAS at all during the manufacturing process, and have even independently tested our products to determine there is NO PFAS by detectable limits.
- Zinc in Motor Vehicle Tires: Again, there is no recycled rubber, tire rubber, or any rubber infill for the project.
- Chemical of Concern in Motor Vehicle Tires: Again, there is no crumb rubber infill being used.
- CA statewide Microplastics Strategy: A bill from 2018, several turf fields have been approved in the coastal zone since this bill was adopted, with next to none having taken the same considerations for the surrounding environment and sustainability the way this project and UCSB have. Turf Fibers do not just up and leave the field and end up in the ocean, despite wild claims suggesting otherwise.

- Impervious Surfacing: The system needs to be impervious due to the existing soils not percolating, thus creating flooding.

- Nothing will leave the field, water draining will not go into the ocean because there is an onsite retention basin.

- off gassing GHGs and heat island effect WERE addressed by the addition of an organic infill being used. Severe temperature reduction is created, without the use or need of water.

- The proposed project has in fact undertaken consideration of alternative options. For example: A turf with no PFAS introduced, an organic infill, a shock pad for safety and a design to basically enclose the field.

- The proposed project will save close to 3 MILLION Gallons of water annually. One hyperlink included by the Sierra Club at the bottom of page 11, will send you to the tested findings on tap water in Goleta Water District. There you can see several chemicals over the limit, including PFOA (267x) PFOA is one of the main PFAS chemicals. So if it's in the water already, it's a good thing it doesn't need to be used on the field. A synthetic field with no PFAS introduced during manufacturing.
This doesn't begin to describe the elimination/need for fertilizers, pesticides and off gassing required

to maintain a natural grass field.

- Synthetic Turf Fields can absolutely be recycled. TRP is a recycling plant with 20 locations across the nation and one in Banning, CA. In 12 years, if the University demands the field be recycled as part of the replacement process, it will be done.

In closing, while I can appreciate the project oppositions concerns and care for the environment, concerns I also share, I feel the information presented to this Committee previously was lacking severe knowledge of not only the project itself, but also of the information present today with regards to the industry, and AstroTurf's forward thinking position towards environmental sustainability, science and above all else, providing safe places for people to play.

Thank you for you time.
Pat Cassa

From: **Pat Cassa** Patcassa33@gmail.com
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date: December 8, 2023 at 4:15 PM
To: SouthCentralCoast@coastal.ca.gov

My name is Pat Cassa, I work for AstroTurf in Southern California and I'm writing today with regard to the pending project for UC Santa Barbara. I will be in attendance at the hearing, and happy to answer questions or assist in anyway possible.

First, I would like to address who AstroTurf and our Ownership (Sport Group) are, and what we emphatically believe. We are dedicated to sustainability, responsible manufacturing and delivering safe places for everyone to play. Sport Group (German owned) is on the front lines in Europe and has brought those practices here, which has put Astroturf at the forefront in innovation and sustainability. With a top ESG score (Top 5% internationally), Sport Group and AstroTurf are not only a global leader in manufacturing, but also an industry leader when it comes to the environment and sustainability. As the inventor of the synthetic turf industry, we have taken it upon ourselves to advance technology both in performance and sustainability and have brought that here to UC Santa Barbara.

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Thank you for you time.
Pat Cassa

AstroTurf Products Are Not Manufactured with PFAS

PFAS have become an increasingly debated topic with contamination now commonly found in groundwater, rainwater, and soil. Artificial turf has also come under scrutiny as a possible source of PFAS. All synthetic turf products currently produced at AstroTurf are manufactured without PFAS. AstroTurf specifies that all turf ingredients be free of PFAS when purchasing raw materials. Our raw materials and finished goods have been submitted to third-party analytical chemistry labs and tested for 32 PFAS using state-of-the-art procedures finding that PFAS concentrations were below detectable limits. In 2020, AstroTurf removed a fluorinated polymer (non-migrating and not one of the 32 PFAS of concern) from the turf construction. This was a proactive decision over and above the regulation to eliminate doubt of PFAS during testing. AstroTurf continues to be the leader in artificial turf - safe for consumers - safe for the environment. As we understand the concern on the presence of these chemicals, AstroTurf will continue to monitor and safeguard the quality and safety of their products.

AstroTurf prides itself on its responsibility to the health and safety of our customers and employees, to the environment and to manufacturing in a responsible manner.

Anthony Daniell
Director of Research and Development
Synthetic Turf Resources

410 Callahan Road Dalton, GA 30721 Office: 706-272-4200 ext: 5210
Email: anthony.daniell@syntheticturfresources.com

California Coastal Commission
8 September 2023

University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Strongly Oppose

We are writing to you today to ask that you deny approval of plans for removal of 3 acres (130,680 ft^2) of natural grass and replacement with plastic grass carpet for a baseball field at California State University Santa Barbara.

- The proposed project ignores current legislative and regulatory schemes:
  AB1423 - "Commencing January 1, 2024, the University of California is requested to comply with the prohibition…"
  SB499 - Applicable to preschools, K-12. Included for purpose of informing UCSB and CCC. The same principles apply.
  CA DTSC - Microplastics, addition to Priority Chemicals List
  CA DTSC - 6PPD in tires
  CA DTSC - PFAS and other chemicals in synthetic turf (pg. 14).
  CA DTSC - Zinc in Motor Vehicle Tires.
  CA DTSC - Chemicals of Concern in Motor Vehicle Tires.
  CA Statewide Microplastics Strategy - Senate Bill No. 1263, Chapter 609, 2018

- The proposed project adds an additional three acres of impervious surfacing to an area already overburdened with impervious ground cover.

- The proposed project ignores detrimental environmental impacts related to chemical leachate into storm drains, soil and air.

- The proposed project fails to address off-gassing GHGs (Green House Gasses) and heat island effect.

- The proposed project has not undertaken consideration of alternative options.

- The proposed project will not save water.

- The proposed and existing synthetic fields are not recyclable.

The UCSB project puts aquatic organisms, the soil biome, wild and aquatic life at risk from the numerous leachates from both synthetic turf and infill. The project is less than 1700 feet from the Tecolotito Creek, just over 600 feet from the Goleta Slough Wetlands and the State Marine

OFFICE OF THE GOVERNOR

OCT 08 2023

To the Members of the California State Assembly:

I am returning Assembly Bill 1423 without my signature.

This bill would prohibit, by 2026, a person, public entity, or educational institution from purchasing or installing artificial turf that contains intentionally added perfluoroalkyl or polyfluoroalkyl substances (PFAS) at a certain concentration level.

This is one of three single-product chemical bans passed by the Legislature this year that attempt to address serious concerns with the presence of PFAS in consumer products. These bills do not identify or require any regulatory agency to determine compliance with, or enforce, the proposed statute.

While I strongly support the author's intent and have signed similar legislation in the past, I am concerned that this bill falls short of providing enhanced protection to California consumers due to lack of regulatory oversight. Previously enacted single-product chemical bans, which also lack oversight, are proving challenging to implement, with inconsistent interpretations and confusion among manufacturers about how to comply with the restrictions.

In order to instill consumer confidence and effectively address public health and environmental concerns, I am directing the Department of Toxic Substances Control to engage with the author and the Legislature and consider alternative approaches to regulating the use of these harmful chemicals in consumer products.

For these reasons, I cannot sign this bill.

For these reasons, I cannot sign this bill.

Sincerely,

Gavin Newsom

From: Christopher Proctor <csproctor@me.com>
Sent: Friday, December 8, 2023 3:39 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Dear Coastal Commission,

I am writing in support of the artificial turf baseball field at UCSB.

When one reviews the scientific literature unbiasedly, it is clear that there is no conclusive scientific evidence that natural turf is less environmentally damaging than artificial turf. Unlike the evidence for environmental damage, the most recent medical literature demonstrates that artificial turf decreases the injury rate of athletes (EClinicalMedicine. 2023 Apr 13:59:101956. doi: 10.1016/j.eclinm.2023.101956.eCollection 2023 May. Incidence of football injuries sustained on artificial turf compared to grass and other playing surfaces: a systematic review and meta-analysis Ilari Kuitunen, Ville Immonen, Oskari Pakarinen, Ville M Mattila, Ville T Ponkilainen PMID: 37125402 PMCID: PMC10139885 DOI: 10.1016/j.eclinm.2023.101956). Not only has the Coastal Commission failed to consider the pain, suffering, social and educational impacts of athletes due to increased injuries associated with natural turf, but also the environmental impacts of these injuries. It is well known that the healthcare industry has a poor environmental record, especially concerning plastic waste. Almost everything in the Emergency Department and the operating room is single-use and disposable. Even one injury requiring a trip to the ER, with subsequent medical studies and surgery, is significantly damaging to the environment, concerning plastic and other waste and increased energy and water demands.

With no scientific consensus supporting that natural grass turf is environmentally better than artificial turf, I urge the Commission to consider the health and well-being of the athletes (and the associated environmental benefits of fewer injuries) and approve the synthetic turf baseball field at UCSB.

Sincerely,
Christopher S. Proctor, MD

Re: Dec 13, 2023 agenda item 13.1.a, University of California Santa Barbara baseball stadium renovations

Dec 8, 2023

California Coastal Commissioners and staff,

Thank you for not permitting UCSB to install a plastic field, also known as a synthetic turf.

A natural grass field can be well-designed for the UCSB site, well-constructed, and well-managed to meet UCSB's need for heavy-usage throughout the wet, rainy season. Regarding the feasibility of this, a lack of examples of natural turf fields meeting UCBS's needs and site conditions does not constitute sufficient evidence to conclude natural turf is an infeasible alternative. UCSB might have to become the first in the area to employ techniques used to enable grass to thrive on this site and take more use. I understand that field users have encountered mud and excess water on the natural grass field that UCSB recently demolished and suffered many cancellations of practices and games, but I believe that all could have been avoided with input from the appropriate experts.

While I am not a professional sports field management expert, through my research as an environmental advocate, I am familiar with the work of professional sports field management experts. I have become familiar by virtue of being a parent who has been, for the past few years, advocating to K-12 schools in my area not to purchase plastic turf. During this time, I have learned a lot about the environmental drawbacks of artificial turf and the feasibility of natural grass as an alternative. I'd like to share some of this information so the appropriate individuals have the sources to vet the above assertions for themselves.

To start, here's a very brief video clip from the nonprofit Field Fund disproving the notion that playing fields can not be used during or after rain.

The nonprofit Beyond Pesticides advocates for the use of natural grass on sports fields. They go a step further, actually. They advocate for that natural grass to be managed organically. The resulting fields are resilient in the face of wear and weather and are cost-effective to manage.

Beyond Pesticides has experts available to provide training and troubleshooting to public agencies (such as the U.C. schools!) as the agency practitioners learn to successfully implement organic turf management practices.

As explained in the 11/29/23 Beyond Pesticides webinar on organic management of sports fields, success with organic management relies not only on refraining from application of petrochemical pesticides and fertilizers but also on a thoughtful, proactive approach to land management. “The healthy functioning of soil arises when plants, microbes, and soil-inhabiting animals actively participate in building their environment.” Healthy populations of these microbes are essential and at the heart of the organic land management approach. Various species of soil organisms actively participate in creating/maintaining soil structure, oxygen in the soil, water infiltration, plant growth, plant nutrition, disease resistance, and mineral nutrient availability.

Conventional turf management, as traditionally taught in turf schools, relies on the input of synthetic chemical products to provide the nitrogen and minerals whereas in this organic protocol, active microbial populations produce the nitrogen and solubilize (chelate) the minerals that already exist in the soil. The focus of organic land management is on building organic matter and biological life in the soil to nourish the plants, an approach 100% founded in science.

One of the experts Beyond Pesticides often sources is Chip Osborne. Chip is a board member of Beyond Pesticides and the lead consultant for the Parks for a Sustainable Future program. Chip has 40 years experience. Over the last 20 years, he has worked with municipalities, assisting in the development and management of organically managed sports fields and parks. He has worked in every climate in almost every state nationwide. While he lives in Maine, his clients are national. Notably he transformed fields at University of California Berkeley, Pepperdine, and Irvine Unified School District (IUSD), amongst others in California. By the way, for IUSD, he addressed the topic of salt in the soils in the linked video, an issue perhaps UCSB might use his help with also.

Chip was one of the featured presenters in the aforementioned webinar. During the presentation, Chip debunked some of the myths about natural grass starting at minute-marker 1:26:52 after explaining that many of the myths have been promoted by industry in order to sell products.

Some of the myths about organic natural grass sports fields that Chip debunked include:

- It’s too expensive.
- It doesn’t work. The field will deteriorate.
- The fields get used too heavily.
- Organic will not perform.

- The fields need to be shut down for rest.

A few of the quotes from Chip that illustrate the feasibility of natural grass include:

- “I have never worked yet, in 25 years, on a field that does not get heavy use.”
- “I have never worked on a property that has been closed or rested so that organic had a chance to work.”
- “When you push back on the industry with a sound response to all of these questions, they have no comeback, because there is no comeback to this. The fact is… there’s enough proof out there to show that.”

MICROPLASTIC POLLUTION FROM ARTIFICIAL TURF

The risk of polluting the marine ecosystem with PFAS, microplastics, and nanoplastics is not worth it given that natural grass is a practical option. Filters, netting, and walk-off mats can not capture the plastic particulate and fibers that shed off the plastic carpet pile as it degrades, subjected to years of heavy foot traffic, ultraviolet raheat, and ultraviolet rays. Citizen scientists have provided plenty of photographic and video evidence of the small plastic fibers blowing distances from the field where they can easily be washed into storm drains or find their way into sensitive marine ecosystems.

Microplastics escape from synthetic turf systems into the environment. These microplastics include pieces of the plastic turf fibers as well as plastic-based infills. Examples of infill include tire crumbs and polymer-fused cork. Synthetic turf fibers detach or break off as the result of age, ultraviolet rays, heat, weathering, and heavy foot traffic. Local filtration systems do not adequately limit the escape of microplastics from the site of the synthetic turf system.

Some microplastics are rinsed into the turf’s drainage system. Microplastics not filtered out could flow into the watershed. Some microplastics are carried much further distances away by wind, shoes, and clothing.

2023 research finds that synthetic turf fibers account for up to 15% of the meso- and macroplastics in rivers and sea surface waters! Synthetic turf fibers are major source of plastic pollution to natural aquatic environments. They are found in Lake Tahoe. They are found in the ocean.

A petri dish of field samples of microplastics that are being isolated and individually studied.
Provided / Katie Senft, Tahoe Environmental Research Center

As for local evidence of microplastics escaping from synthetic turf, here is a video taken recently at a high school field near me showing some of the plastic turf fibers and black tire crumbs, which are also considered microplastics, that are initiating their journey out into the world far from the field.

It's not just microplastics that can be seen by the naked eye migrating off the fields into the environment. Nanoplastics and chemicals that can not be seen with the naked eye are also migrating off the fields into the environment.

PFAS POLLUTION

There is substantiated concern for PFAS exposure to field users and for PFAS to potentially leach from the synthetic turf into groundwater, surface water, and eventually drinking water. "Every sample of artificial turf tested by academic institutions and NGOs have resulted in positive results for PFAS," writes Dr. Kyla Bennett of Public Employees for Environmental Responsibility.

See this summary of PFAS and other chemicals of concern in a sample of FieldTurf.

> **Conclusion.** The artificial turf proposed by Harvard-Westlake does contain PFAS, including two PFAS that are of critical concern, PFOA and PFOS. Indeed, the industry now acknowledges that all artificial turf contains PFAS. A bill proposing to ban artificial turf containing PFAS in California led to the Synthetic Turf Council testifying that:
>
> > The bill a (sic) ban on the sale of artificial turf containing intentionally added PFAS on January 1, 2024 to certain public entities and by January 1, 2025 for all sales in California. These dates do not provide enough time for manufacturers and suppliers to develop viable alternatives for the market place…[4]

Dr. Jamie DeWitt, Professor of Pharmacology and Toxicology of the Brody School of Medicine at East Carolina University who researches the toxicity of PFAS and how they affect the immune system, writes: "All PFAS, regardless of their specific chemistries present, have at least one 'characteristic of concern' associated with them. The vast majority of PFAS are persistent, which means that they will remain in the environment for years, to decades, to centuries, serving as

continual sources of exposure. Many PFAS are known to bioaccumulate, or move from the environment into the bodies of living organisms where they can potentially interact with biological molecules to produce toxicity."

Common tactics used to mislead buyers on the subject of PFAS are to cite results from tests that only test for a small subset of the thousands of chemicals in the PFAS class or to use test procedures that do not reflect the weathering and abuse the product takes during the years it is installed on site. I believe total organic fluorine testing and SPLP are recommended. Dr. Kyla Bennett and Dr. Graham Peaslee would be experts worth consulting to confirm.

Claims that synthetic turf has acceptably low levels of PFAS were tested with the wrong test. As an example, see this explainer.

Please do not fall for claims of "certified PFAS-free" synthetic turf. Here is a cautionary tale about the City of Portsmouth, NH. The city was promised a "certified PFAS-free" synthetic field by the engineering consultants and manufacturers (FieldTurf). This promise was not delivered.

GREENHOUSE GAS EMISSIONS

2018 research by Dr. Sarah-Jeanne Royer of Scripps Institute of Oceanography and International Pacific Research Center reports that LDPE (Low Density Polyethylene) plastic, which is the kind in synthetic turf, off gasses methane and ethylene in ever increasing amounts. Methane traps 90% more heat than carbon dioxide and is 21 times more potent. Land based plastics produce 2 times more methane and 76 times more ethylene than those found in our waterways and oceans.

Please refer to the details provided in this letter from Dr. Royer explaining how her research makes it clear that, because of its composition and surface area, synthetic turf "has a distinctly large contribution to climate change in comparison to other plastics."

ENVIRONMENTAL IMPACTS DURING PRODUCTION

In addition to the localized environmental impacts that have been raised regarding the 8-10 years the plastic turf carpet will be on site before needing replacement, please consider a more holistic view of the environmental impacts of artificial turf by acknowledging that the extraction of fossil fuels to manufacture this fossil-fuel-derived plastic foist the burden of our unnecessary and excessive consumerism on environmental justice communities. What happens to the drinking water where these products are manufactured and disposed of?

Excessive volumes of water are used to product artificial turf. This negates the water saving benefits it is touted to offer.

END OF LIFE DISPOSAL IMPACTS

So much of the plastic carpet pile height of artificial turf has broken off after about 8 years (typical warranty period) of use, that the carpet fibers are too short to keep the infill material contained and so the whole carpet becomes due for replacement. Consider the environmental impact of this end-of-life plastic carpet. Incineration is one method of disposal. Incinerators are a source of pollution. By the way, incineration does not destroy PFAS. Recycling of plastic is reported to pollute the air around the facility. Besides, true recycling of artificial turf into more artificial turf is not a scalable or cost-effective option and not offered by any facility in the country. Chemical recycling (a.k.a. “advanced recycling”) is essentially incineration so should not count as recycling. As for downcycling, this is also not scalable or cost-effective. Part of the challenge is separating the plastic from the infill. If the applicant proposes downcycling is an option, be wary the reference may be to a facility performing this task for a very small subset of select customers either as a sales strategy to win the approval of an environmentally-responsible public agency. Please insist on evidence of scale. Downcycling is not recycling, and if there were significant demand and profit to be made off the downcycled products produced (which are by the way, likely also laced with PFAS), then why are most artificial turf carpets sent to landfills? The capacity of many landfills are reported to be rapidly depleting, including the the County of Santa Barbara’s Tajiguas Landfill. Even if there’s room in a landfill, the PFAS and nanoplastics may contaminate local groundwater.

Organically managed natural grass is feasible, cost-effective, better for human health, better for the environment, and can achieve the results desired by UCSB.

Again, thank you for requiring that UCSB does not install plastic grass.

Sincerely,
Cynthia Fan
California K-12 parent

From: John Davis <jadavisjr1@verizon.net>
Sent: Thursday, December 7, 2023 6:41 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Find attached as a pdf and in text below my public comments regarding the UC Santa Barbara baseball project . . . I am encouraged that you will be able to review my thoughts in advance of me speaking to them in the public opportunity next Wednesday. As a Trustee for the UC Santa Barbara Foundation I look forward to continuing the excellent relationship UCSB and the Coastal Commission have had for decades as excellent stewards of the beautiful coastline UCSB is fortunate to occupy. As such, see below and attached . . .

As a Trustee for the UC Santa Barbara Foundation I am chartered with representing the University to the community; to stand tall for it's commitment to the citizen's of this state that all development projects are sensitive to the legitimate environmental concerns we all care about, especially for the special coastline landscape that UCSB occupies. As such, having worked closely with the Athletic Department and the entire University, throughout the fund raising and planning activities of this project, I am confident the steps necessary to meet, if not exceed, all of your expectations have been addressed in great detail.

The science, as indicated by the Staff's recommendation is constantly evolving, but there is no evidence that the proposed artificial turf design fails to address each of the Commission's concerns. What we do know is that fertilizer and weed killers will be eliminated. Combustion engine exhaust from lawn mowers, edgers, infield dragging equipment, etc eliminated. And maybe most importantly we all know a drastic reduction in water consumption is critical to our long term development.

As you know, UCSB has a long history of working closely with the Coastal Commission on similar issues and there is no reason to believe this proposed design, utilizing the "best in the business" Engineers and Turf experts, will provide anything but an environmentally sensitive result, similar, if not better, than the dozens of previously approved artificial turf projects within the coastal zone.

Of course, there are no perfect solutions to any coastal development activities, but UC Santa Barbara would like to continue to be recognized as a leader in working closely with the Coastal Commission. For us both to use this project as a Role Model for all future transitions from grass to synthetic surfaces in the Coastal Areas. To rise

6 Dec 2023

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We all know “banning” the use of synthetic surfaces is not an environmentally, nor economically sound position. Governor Newsom had the opportunity to do just that and did not. So lets all agree to use this project as the Gold standard for implementing synthetic surfaces and proudly approve the University’s request before you today.

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date:	Monday, December 11, 2023 9:02:53 AM
Attachments:	image008.png image001.png STC Comments to CA Coastal Commission 12.8.2023.pdf

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From: Melanie Taylor, CAE <Melanie@syntheticturfcouncil.org>
Sent: Friday, December 8, 2023 4:53 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Hello, please see attached public comment letter on behalf of the Synthetic Turf Council.

Thank you,

Melanie Taylor, CAE
President and CEO
Synthetic Turf Council
2331 Rock Spring Road, Forest Hill, MD 21050
Phone: 443-640-1067 x1142 | Direct: 443-903-3806
melanie@syntheticturfcouncil.org
www.syntheticturfcouncil.org

The STC is managed by Stringfellow Management Group

Date: December 8, 2023

From: Melanie Taylor, CAE
President and CEO
Synthetic Turf Council
2331 Rock Spring Road
Forest Hill, MD 21050

To: Members of the California Coastal Commission

Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf)

Dear Members of the California Coastal Commission,

On behalf of the Synthetic Turf Council (STC), I am writing to express our opposition to the staff's recommendation regarding the latest developments around the baseball field at the University of California Santa Barbara. Contrary to the staff's recommendation, we believe this project should be allowed to continue with its original intention of synthetic turf.

Founded in 2002, the STC is a 501(c)6 trade association representing the synthetic turf industry. We represent nearly 200 members and promote industry excellence through voluntary guidelines, certifications, and other learning platforms. Our membership includes representatives from every stage of installing and maintaining a turf field, including builders, design professionals, civil engineers, testing labs, maintenance providers, manufacturers, suppliers, installation contractors, infill and shock pad suppliers, and specialty service companies.

Synthetic turf provides significant benefits for communities, the environment, and players alike. As the California Coastal Commission considers this, it should keep in mind the following points about synthetic turf's benefits:

- **Regarding water conservation:** When it comes to greatly reducing water use and reducing water pollution compared to what's needed to support grass alternatives, there are significant benefits to synthetic turf. In fact, one full-size synthetic turf sports field saves between 500,000 and 1 million gallons of water each year.
- **Regarding reducing the need for toxic chemicals**: With runoff of toxic pesticides and fertilizers as a principal cause of water pollution, synthetic

turf eliminates the need for nearly a billion pounds of harmful pesticides, fertilizers, fungicides, and herbicides which are used to maintain grass.

- **Regarding microplastics**: The field of microplastic analysis is relatively young and harmonized methods and sampling techniques are being developed. While this is a single study that warrants further work to see if results are replicable and valid, we take the findings seriously. STC members. For example, we are developing guidelines and stewardship programs to ensure synthetic turf fields are properly managed before, during, and after their useful lives.
- **Regarding PFAS**: Turf industry manufacturers, as represented by the STC, recognize the concerns related to PFAS in turf and are committed to ensuring their products contain no intentionally-added PFAS constituents.
    - This reflects the industry's imminent commitment to ensuring that there is no intentionally-added PFAS across all points of manufacturing and installation of synthetic turf.
    - In addition, the reality is that there is no generally-accepted testing regime for PFAS consumer products, including synthetic turf, due to collection challenges. For example, current testing methods do not allow for distinction between PFAS in water runoff versus component parts of the turf itself.
    - In an effort to bridge this gap, the synthetic turf industry is providing feedback at all levels of government, including at the state level, on how to develop a testing regime that will produce accurate and reliable results.
    - The industry is also actively working with the American Society for Testing and Materials to provide similar guidance.
- **Regarding heat**: Heat's impact on surfaces is highly variable and dependent on a number of external factors, while there are simple steps to ensure player safety. The temperature of a field is highly variable depending on the type of field, shading, humidity, infill, and other local conditions. Briefly watering the field can also reduce surface temperatures anywhere from 60-85% compared to pre-watering temperatures.

For these reasons and more, we believe the California Coastal Commission should reconsider and approve this project for the betterment of the university and community.

The STC is committed to protecting the environment and currently provides the latest guidance and resources for synthetic turf systems. We are happy to provide counsel on any issues that would further our sustainability efforts as an industry.

Thank you for your attention and consideration.

Sincerely,

Melanie Taylor
President and CEO
Synthetic Turf Council (STC)
www.syntheticturfcouncil.org

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date:	Monday, December 11, 2023 9:03:01 AM
Attachments:	image001.png

From: Thomas Murphy <tmurphy@brock-international.com>
Sent: Friday, December 8, 2023 4:58 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Dear Commissioners,
I am the Director of Engineering at Brock USA (Boulder, CO) and wanted to provide some information regarding the products that my company would be supplying for the proposed artificial turf baseball field at UCSB: the underlayment pad (PowerBase YSR shock pad), and the performance infill (BrockFILL).

The PowerBase YSR pad is used beneath the turf to provide shock absorption and, in particular, to reduce the likelihood and severity of head injuries. The pad itself is recyclable and is made from a single component – expanded polypropylene (EPP) foam. No flame retardants, fluorinated compounds, plasticizers, or antimicrobials are added during production. PowerBase YSR is part of the Cradle to Cradle Certified® Products Program, the world's most advanced standard for safe, circular and responsible materials and products. The polypropylene base resin used to manufacture the pad is FDA approved for direct food contact, and we have performed 3rd-party testing for PFAS, Total Organic Fluorine, as well as other compounds – none of the 30 PFAS compounds assessed were detected at the limit of reporting of the laboratory (nor was any organic fluorine). The PowerBase YSR pad carries a 25-year warranty and can be re-used when the synthetic turf needs to be replaced.

The BrockFILL infill is made from 100% pine wood that is sustainably grown and harvested in Georgia. No other substances whatsoever are intentionally added during the manufacturing process. The product was developed as a non-microplastic alternative to the crumb rubber (i.e., tire crumb, or SBR) that has been commonly used as an infill material on synthetic turf fields. It is 100% biobased and is part of the USDA BioPreferred Program and the Cradle to Cradle Certified® Products Program. The material is fully biodegradable and, like our PowerBase YSR pad, has been extensively tested for PFAS, Total Organic Fluorine, and other substances of concern. Total pesticide and chlorinated acidic herbicide residues were not detected above the method limit of quantitation and did not contain concentrations of heavy metals that exceeded guideline values for the protection of human health or threshold values for the characterization of hazardous waste. Additionally, leachable heavy metals from the infill were not detected above the method detection limit. One notable benefit offered by the BrockFILL infill is that it reduces the surface temperatures when

compared to turf systems with crumb rubber. Third-party testing in accordance with FIFA Test Method 14 (Determination of Heat on Artificial Turf Products) showed that, when tested in a dry condition, a turf system with BrockFILL had surface temperatures that were roughly 30 °F lower than a system utilizing crumb rubber. The infill does not require irrigation, but because it can absorb a significant amount of water during rainfall events, this cooling effect is often more pronounced when the material is wet due to evaporative cooling.

Our mission as a company is to provide high-quality, long-lasting, and environmentally friendly products that provide enhanced safety for the athletes that play on these fields. The products we would be providing for the UCSB project are either recyclable or biodegradable and, based on the results of extensive 3rd-party testing, do not pose concerns to a human health or environmental concern. All of the reports referenced here (as well as additional information and data) can be provided upon request.

Sincerely,
Tom Murphy

TOM MURPHY

DIRECTOR OF ENGINEERING
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-----Original Message-----
From: Cindy Hardin <cindyhardin@laaudubon.org>
Sent: Friday, December 1, 2023 7:50 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

Dear Commissioners-

To replace natural grass with artificial turf, which is made of non-biodegradable plastic, is not good policy. It will impede infiltration of rainwater to the ground below, break down into micro plastic particles that will eventually end up in the ocean, and not produce the oxygen that natural turf does through the process of photosynthesis.

Please reject this proposal.

Sincerely,

Cindy Rosene-Hardin (and UCSB alumnus)

From:	SouthCentralCoast@Coastal
To:	Fearer, Sam@Coastal
Subject:	FW: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).
Date:	Monday, December 11, 2023 9:03:17 AM
Attachments:	CCC.pdf

From: Cynthia Fan <cynthiafan247@gmail.com>
Sent: Friday, December 8, 2023 4:58 PM
To: SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Subject: Public Comment on December 2023 Agenda Item Wednesday 13.1a - University of California Santa Barbara Notice of Impending Development No. UCS-NOID-0002-23 (Baseball Stadium Turf).

See attached document.
-Cynthia Fan