March 16, 2021

Mr. Alex Elvin, General Planner
Martha's Vineyard Commission
PO Box 1447
Oak Bluffs, MA 02557

Re: Martha's Vineyard Regional High School
Athletic Field Improvements (Amended DRI # 352)

Dear Mr. Elvin:

I received your email and staff/MV Commissioners questions dated March 9, 2021, regarding the MVRHS's Application for an amended DRI, as referenced above. I have coordinated our reply with the MVRPS and project team. The following is a listing of your questions and our responses.

Q1. If the groundwater monitoring wells reveal the presence of microplastics, chemicals or other contaminants, what will be done since the field will already be in place?

Response: The MVRHS administrators and staff want only the safest, healthiest playing fields for the High School students and community at large. The best way to ensure that the groundwater below our campus will not be impacted with nitrogen, heavy metals, microplastics, chemical and other contaminants from the athletic fields are to test those products before we put them in the ground.

As you are all aware, the testing of the synthetic turf products has been conducted by the MVC’s third party independent Licensed Site Professionals (TetraTech), and further reviewed by the MVC’s environmental consultants (Horsley Witten). Here is what both peer review agents had to say regarding the results of that testing:

MVC Peer Review Conclusions

TetraTech – Synthetic Turf Laboratory Testing and Analysis Summary Report – February 26, 2021
Cost of TetraTech Study: $19,500.00
Contracted By: Martha’s Vineyard Commission (MVC)
Source of Funds: Martha’s Vineyard Regional High School (MVRHS) (Taxpayer dollars)

1. Based on our review and the current regulatory standards for PFAS in Massachusetts, there are no significant risks associated with the discharge of PFAS from the synthetic turf field into groundwater. (Page 15)

2. “The PFAS6 compounds were not detected in the total PFAS analysis performed on the selected synthetic turf components. Therefore, no significant risks can be identified based on available data.” (Page 13)
3. “…no significant risks from PFAS can be identified based on available data and regulatory standards.” (Page 16)

4. “…no significant risks from fluorine can be identified based on available data and the EPA RSL.” (Page 14)

5. “None of the metals detected in the total metals analysis of the various synthetic turf components were reported at concentrations above the MCP Method 1 S-1/GW-1 standard…” (Page 14)

6. “There are no excess risks associated with the total concentrations of metals in the synthetic turf components…” (Page 13)

7. “…no significant risk is associated with direct contact, incidental ingestion, and/or inhalation of these materials (Brockfill) in the synthetic turf components for these compounds.” (Page 13)

8. “Therefore, there are no significant risks associated with direct contact, incidental ingestion, and/or inhalation of the Greenfield Turf…” (Page 13)

9. “Based on this evaluation, impacts from a theoretical discharge of antimony and other metals from the field to drinking water are de minimis.” (Page 17)

10. The resulting mass of phenol that may leach from the synthetic turf field is significantly below the MCP RQ, suggesting potential quantities released to the subsurface are de minimis. (Page 15)

11. The resulting mass of benzyl alcohol that may leach from the synthetic turf field is significantly below the MCP RQ, suggesting potential quantities released to the subsurface are de minimis. (Page 15)

12. “…we believe our evaluation provides data to support that the overall risks to human health due to potential direct contact exposure to hazardous materials in or from the synthetic field materials are de minimis.” (Page 17)

13. “…none of the detected metals or compounds were detected in the leachate above the drinking water standards (MMCLs or MCP Method 1 GW-1) which would be applicable if the stormwater leachate from the field was being directly consumed.” (Page 17)

14. “Based on the current understanding of PFAS using available analytical and risk assessment methods; elevated risk and environmental impacts from PFAS associated from the proposed synthetic turf field appear unlikely.” (Page 17)
1. We agree with the (TetraTech) report conclusion that the overall risk to human health through a direct contact exposure with the field components is de minimis. (Page 5)

2. “Tetra Tech concluded that the estimated mass of antimony released to stormwater would be insufficient to result in detectable concentrations in groundwater downgradient from the proposed field above the comparison standards. HW does not disagree with this conclusion…” (Page 5)

3. “From a toxicology perspective, the analytical data supports the Tetra Tech conclusion that the field is safe to play on.” (Page 6)

4. Field safe to play on. Detected compounds at concentrations below background and comparable standards for contact. Risk through direct contact de minimus (Powerpoint Presentation March 4, 2021 MVC Public Hearing.)

As discussed during our last public hearing on March 4, 2021, native topsoil was found to have significantly higher concentrations of heavy metals, including lead, arsenic, cadmium, and ‘forever chemicals’ including PFAS and PFOS contaminants than found in any of the synthetic turf products proposed for this project. Further, the use of just one synthetic turf field reduces the nitrogen load on the High School campus by 264 lbs. of nitrogen per year and reduces the irrigation demand on our aquifer by 1.18m gallons of water per year. The results of the testing show that, in this case, the use of synthetic turf is actually a cleaner option than modification of the existing native topsoil found on MVRHS campus.

Q2. Natural versus artificial materials: Wherever possible, working with nature, rather than against it, is the preferred method of climate adaptation. Today there are grass field designs that are said to better withstand heavy use, reduce impacts to the land and absorb more carbon. Based on regenerative landscape practices, these techniques better absorb water, decrease the need for irrigation, and reduce the need for chemical fertilizers. Can the applicant please explain why these techniques have not been proposed for the athletic field renovations? And will the applicant consider proposing them?

Response: Yes, the MVRHS would consider proposing additional regenerative landscape practices. MVRHS agrees that regenerative landscape practices provide value to the island’s ecosystems, and is committed to including the following regenerative landscape techniques in the maintenance of our natural grass fields:

1. Annual soil testing of all fields.
2. Aeration & topdressing of all fields.
4. Schedule early morning irrigation.
5. Establish field use restrictions as appropriate.
6. Return grass clippings to the soil when mowing.
8. Procure drought tolerant grass seed, with a mix of Kentucky Bluegrass and Perennial Ryegrass cultivars.
9. Applying no more than 0.5 lbs. of water soluble (slow-release) nitrogen at any one application.
10. Source local compost for holding moisture & nutrients for the roots. How much is used would be based on soil physical properties & organic matter testing.
11. Apply additional sand for reducing the compaction potential of the soil. How much sand, and what sieve is used would be based on soil particle size testing.
12. Install subsurface drainage in the soil to move water away from the playing surface as quickly as possible.
13. Include storm water recharge areas next to each field to filter and recharge the water back into the soil adjacent to each field.

The above regenerative landscape practices will help to keep our five (5) natural grass fields safe and healthy. Even with the above regenerative landscape practices the natural grass fields at MVRHS cannot withstand greater usage. The best way to increase the playability and safety of our natural grass surfaces is to maintain them as outlined above and shift the aggressive use in the spring (i.e.: Lacrosse in March / April) to a synthetic turf surface. We can also benefit by shifting additional use hours from the natural grass to synthetic turf throughout the year to allow us to better maintain, rest, restore and otherwise support our five (5) natural grass surfaces.

Q3. Although the High School has not included any information in regard to later phases of the program for the improvement of the athletic fields, it is clear that as a consequence of phase 1, a softball diamond will be eliminated. There has been testimony that the diamond would be relocated in an area that is now forested. If cutting down the forest to accommodate the relocation were not permitted, what are the High School's contingency plans?

The location of the two (2) softball fields as shown on the Athletic Field Master Plan, dated February 4, 2019 are not encumbered by Natural Heritage and Endangered Species Program (NHESP) designation and are outside all wetland and other environmental regulatory areas. However, should the MVRHS want to reconsider the location of the softball fields they would have several options available on their campus or adjacent properties.

1. The softball fields could be relocated at the site of the old track and field, as shown in Figure 1, below. This option was presented to the Facilities Subcommittee in 2018/2019, but was not selected due to the impact to the adjacent Deer Run neighborhood, and the outfields overlapping with the Field Hockey field. This option is included in the February 4,
2019 Athletic Field Master Plan previously submitted to the MVC with our original DRI application.

Figure 1 – Alternative location for HS Softball

2. A second option would include locating the softball fields on the opposite side of Edgartown Vineyard Haven Road (Area #2 6.0 Acres +/-) adjacent to the expanded Community Service facility and the Schoolhouse Village Neighborhood. This option was also not accepted because it was across the road from the High School campus, would require more tree clearing than the selected alternative and creates an impact to the adjacent Schoolhouse Village neighborhood. Refer to Figure 2 for additional information.

Q4. One of the things the MVC looks at is the availability of suitable alternatives, which would include the possibility of all-grass fields. If the MVC does not approve the use of synthetic turf at the High School campus, what alternatives would be available to accommodate the existing athletic program on all natural grass athletic fields?

Response: We have previously documented that a synthetic turf field can accommodate the use of three (3) natural grass athletic fields. Should the MVC not allow the use of synthetic turf at the High School campus we would be forced to find locations for two (2) additional natural grass fields at MVRHS. The only remaining areas available for development of natural grass athletic fields include Area #1 and Area #2 as shown in Figure 2. (following page).
1. **AREA #1** consists of approximately 3.75 acres of existing forest at the south end of the existing running track. This area is not encumbered by Natural Heritage and Endangered Species Program (NHESP), wetlands or other regulatory restrictions. This area was not originally designated for development due to its immediate proximity to the Deer Run Neighborhood and the fact that it would require clear cutting of existing mature forest.

2. **AREA #2** consists of approximately 6.00 acres of existing forest across Edgartown Vineyard Haven Road. This area is not encumbered by Natural Heritage and Endangered Species Program (NHESP) areas, wetlands or other regulatory restrictions. This area was not originally designated for development due to its location on the opposite side of the road, its immediate proximity to the Schoolhouse Village Neighborhood and the fact that it would require clear cutting of existing mature forest.

Should the MVC not allow the use of synthetic turf the MVRHS may have to pursue the construction of additional natural grass athletic facilities in both of these locations. Due to Title 9 requirements, these locations would likely have to include additional roadway access, parking, seating, sports lighting, irrigation and other associated site improvements. The cost of these expanded facilities has not yet been calculated but would likely exceed our available budget.

![Figure 2 – Alternative locations for additional natural grass fields.](image)
Q5. Firefly Sports Testing is quoted in an answer provided by the Applicant (Jan. 25, 2021 Q&A) as saying, “Other than g-max there is no other single end-of-life test recognized in the industry.” Specify the condition of the field components that would give rise to a failing test score (a cumulative D or F), making replacement necessary.

Response: There are several possible conditions of the field components that could give rise to a failing test score. I would ask you to please remember that all turf products and all turf systems are not the same and are not equal. The most common failure of a turf system would be disbursement of infill, resulting in a low infill depth and/or higher Gmax rating. This can occur when the synthetic turf specified has a lower Pile Fiber Weight or “faceweight”. A lower faceweight is a function of several things, including fiber height, how many fibers are tufted in each bundle, what is the stitch rate per bundle (distance between tufted bundles in one row) and what is the stitch gauge (Distance between tufted rows). A low faceweight would be in the range of 33-36 oz/sy and is often found to have fiber height of 2.5”, stitch rates in excess of ½” and a stitch gauge of approximately ¾”. This is common in older fields and is especially prevalent in products manufactured by FieldTurf from 2004 – 2012. With a lower faceweight the athlete is relying predominantly on the infill for shock absorption, traction and rotational resistance. Disbursement of infill would be common in the system outlined above, especially as it reached 5 and 6 years of age, and could result in failing scores for HIC, GMax, Infill Depth, Force Reduction, and Vertical Deformation. Low scores in even 50% of those testing criteria together could result in a cumulative grade of D or F.

The specified woven synthetic turf system includes a minimum faceweight of 59 oz/sy woven on a 12 pic diamond matrix. This system provides a much more uniform and dense profile and relies less upon the infill for shock absorption, traction and rotational resistance. The proposed system also includes the use of a resilient pad, which has been shown to extend the life and better maintain testing result over the long term. I would not expect this system to fail an end-of-life test within the term of its warranty (10 years), and it would likely last much longer. We have installed this system with the Tower School in Marblehead, and I would be pleased to meet any of your commissioners on site should they wish to review the product in place.

Q6. You have stated that the turf blades won’t break or pull free because there is not enough force applied and because of the woven technology. You have also stated that with wear and tear, fibers can fold and lay over (Nov. 13, 2021 Q&A, question 18). Your submissions indicate the product (i) meets the European standard (at least in part for durability, although it is not clear that “meeting the standard” means there is no loss of mass), and (ii) meets the FIFA standard, which may or may not be relevant on the issue of loss. Finally, the Labosport testing concluded that there was zero yarn loss over the course of the testing and that the monofilament fibers retained their integrity and remained upright through the testing. In your opinion, is there any loss of plastic through degradation from wear and tear and UV exposure? If there is loss, what percent (by weight) is lost by the end of the product’s useful life?

Response: My opinion regarding wear is based upon the third-party independent testing that has previously been provided to the MVC. As noted in your question above, the test results prepared by Labosport concluded that there was zero yarn loss over the course of the testing...
and that the synthetic turf fibers retained their integrity and remained upright through the testing. The testing conducted by Labosport ran the product through 300,000 cycles on the Lisport machine. To put that in perspective, FIFA considers 20,000 cycles on a Lisport machine to be the equivalent of eight years of use.

My opinion in regard to UV degradation would also be based upon the third-party independent test results previously provided to the MVC. As outlined in the Labosport testing results, the Fédération Internationale de Football Association (FIFA), International Rugby Association (IRB), and the International Field Hockey Association (FIH) have all provided criteria needing to be met to show that the product passes their performance, durability, product identification and facility testing requirements.

**Color Change / Grey Scale:** The results show a test result of 4/5 for the tested fiber. All governing bodies require a score that is equal to or greater than 3, on a scale of 0-5. A score of 4/5 represents “little to no change” in color from UV exposure.

**Breaking Force:** Breaking force is the force (lbs.) required to break the fiber by pulling. All governing bodies that required the test required a result equal to or greater than 8 lbs., with less than 50% variation in measured fiber width. The IronTurf fiber provided 17 lbs. of force on a new fiber, and 18 lbs. of force on the same fiber after UV exposure. The dimensional variation was 2% overall as measured before and after testing. Both results were marked as passing by Labosport.

Please refer to the Labosport results provided to the MVC on December 28, 2020 for additional information.

Q7. Is there anything that can be done prior to the installation of a synthetic field which would make the potential conversion to a grass field easier in the future?

Response: Yes, and this is a great question. As we approach any athletic field construction project we try to anticipate changes and modifications that could be desired in the future. Our goal is to accommodate the unforeseen change while minimizing the future impact and cost to the Owner. As an example, we always include four empty conduits under the track at all four corners. These are empty conduits with pull ropes and caps, and we terminate all four into a hand hole on either side. This would allow for the extension of future utilities, electrical services, data lines or other as-of-yet unthought of utilities into the field area without the need to cut the existing track surface. These conduits would also allow for the future extension of irrigation lines if desired. Other details we have included that would ease the future transition from turf to grass include the following:

1. Four empty conduits at each point of curvature on the new 400m running track to allow future utility access to the field. This could include irrigation.
2. At the bottom of the turf field cross-section we require a filter fabric which is placed over the native subgrade. This filter fabric limits the ability of subbase materials, stone and gravel, from migrating into the native soils. Should the MVRHS want to convert the field back to natural grass you would remove the turf, pad and approximately 6” of free draining
stone to expose the filter fabric and original native subgrade soils. The existing drainage improvements installed below the filter fabric would stay in place and would work equally well for a natural grass field. The drainage stone removed would be suitable for roadway construction and drainage project elsewhere on the island and would have value.

3. The trench drain product installed at the transition from the inside lane of the track surface to the field is the same one we would use for natural grass and would stay in place.

4. The football goal posts we have specified could stay in place during a conversion to natural grass.

5. The grade from the field ridgeline to the field sideline for the synthetic turf is 0.5%. If we thought that a conversion to natural grass might be considered in the future, I would increase this slope now to 0.75%. This would make it easier to construct a future crown on a natural grass field which would require a slope between 1.0% and 1.5% (Max).

Q8. In the Nov. 13 Huntress letter (question 21) the question was. "Are there warranty-voiding conditions?" The answer provided was, “no.” As the manufacturer’s warranty has not been provided, for clarification, there are any exclusions to the warranty for the Infilled Synthetic Turf System? Is there nothing the owner can do can which might void or limit the warranty?

Response: Yes, of course there are instances when the warranty would not cover certain damage. Those would include vandalism and acts of God. Because this is a public project it will be bid following Massachusetts public bids and construction laws. In that way, the Owner and NOT the manufacturer dictates the language and limitations of the warranty. If there are specific concerns you have about early failure of any products we are proposing, and whether that condition would be covered by the warranty, then let me know and we can craft the language to be included in the warranty specifications now. I am available should the MVC staff want to discuss a condition that could be included in the DRI approval to alleviate your concerns. The important take away here is that the Owner (MVRHS) and NOT the manufacturer dictates the language and limitations of the warranty.

Q9. Are there other playing fields on the Island that could be used by summer camps and youth groups in lieu of the High School’s fields?

Our High School hours of usage alone over burden the natural grass fields. Denying the youth and summer camps access to our fields does not solve our natural grass issues.

MVRHS has established policies supporting public access to our facilities whenever possible and takes pride in being a resource to our community. Denying our youth sports and summer camps access will not offset the intensity of use provided by our high school athletic program; a synthetic turf field will.

Q10. One of the things the MVC looks at is the availability of suitable alternatives, which would include the possibility of all-grass fields. In this regard, what specific issues were unable to be resolved with the Field Fund a few years ago which led to the termination of discussions? If the general sticking point was the terms of a license agreement, what aspects of that agreement were unable to be agreed? Putting aside the proposal before
the MVC, are those issues still a bar to any arrangement with the Field Fund? (A similar question was posed on Dec. 2, 2020 (question 17 in the Dec. 12 response from the high school), and the answer was not helpful.

Response: To be provided by MVPS staff under separate cover.

Q11. Please provide the minutes of all MVRHS School Committee (or subcommittee) meetings at which the athletic fields project has been discussed.

Response: To be provided by MVPS staff under separate cover.

Thank you for your time and consideration. Please let me know if you have any questions or require any additional information to complete your review.

Sincerely,
Huntress Associates, Inc.

Christian C. Huntress
President

Cc: Matthew D’Andrea – MVRPS Superintendent
Richard Smith – MVRPS Asst. Superintendent
Kimberly Kirk – Chair, MVRHS School Committee
Joseph Sullivan – Daedalus Projects, Inc.

17 Tewksbury Street - Andover, Massachusetts  ph. 978.470.8882  fx. 978.470.8890