Martha’s Vineyard Regional High School
Kimberly Kirk, Chair MVRHS School Committee
Kris O’Brien, Project Representative MVRHS School Committee
Matthew D’Andrea, Superintendent
Richie Smith, Assistant Superintendent

HUNTRESS Sports
Christian C. Huntress RLA
President & Project Manager

Daedalus Projects, Inc.
Joseph Sullivan, Project Manager
Owner’s Project Manager

Applications:

1. Oak Bluffs Planning Board – Site Plan Review (OBZB Sect 10.4 & 8.2)
2. Martha’s Vineyard Commission – Development of Regional Impact (DRI #352)
Work completed since our 10/19/20 LUPC Hearing:

1. Working with MVC Staff to catalog and respond to twenty (20) questions raised by the MV Commissioners during the 10/19/20 LUPC hearing.

2. Working with MVPS to review and respond to an additional twenty-one (21) questions provided by MVC staff on 11/09/20.

3. Provided a spreadsheet to MVC staff documenting all questions, answers and supporting materials provided to date.

4. Coordinated the shipment of samples from the turf and infill manufacturers for environmental testing by TetraTech and Alpha Labs.
Martha’s Vineyard Regional High School

Athletic Field Improvements – Phase One

Presentation Agenda

1. 2018 Athletic Field Master Plan

2. Existing Conditions & Limit of Work

3. 400m Track & Field
   1. Site Layout & Proposed Improvements
   2. Pedestrian & Vehicular Circulation
   3. 400m Track & Field Athletic Program
   4. Sports Lighting
   5. Grandstands & Pressbox
   6. Field House Program

4. Natural Grass Field Improvements (Field #2)

5. OBPB, MVC Staff & Peer Review Improvements

6. Discussion Topics – Five (5) Topics/Questions we have had to date.
Martha’s Vineyard Regional High School Opportunities & Constraints Plan
Martha’s Vineyard Regional High School
Existing Conditions
Martha’s Vineyard Regional High School
Existing Conditions
Martha’s Vineyard Regional High School
Existing Conditions

MULTI-PURPOSE FIELD

1. Challenged sports turf conditions.
2. Limited storage.
3. Grandstands are ADA compliant.
4. Site access is not ADA compliant.

Mark McCarthy
MVRHS Athletic Director

1. To discuss overall hours and use of MVRHS Game Field.
Martha’s Vineyard Regional High School
Existing Conditions

MULTI-PURPOSE FIELD

1. Challenged sports turf conditions.
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3. Grandstands are ADA compliant.
4. Site access is not ADA compliant.

Mark McCarthy
MVRHS Athletic Director

1. To discuss overall hours and use of MVRHS Game Field.
Martha’s Vineyard Regional High School
Existing Conditions Photos

400m TRACK & FIELD

1. Track Surface installed in 2016
2. Asphalt is over 20 years old
3. Long Jump too close to field
4. Discus in conflict w/ field
5. Common finish on wrong side
6. Poor sports turf conditions
7. Limited storage
8. Limited spectator viewing
9. Not ADA compliant
10. Abutter conflicts
100% PERMITTING DRAWINGS FOR

ATHLETIC FIELD IMPROVEMENTS - Phase One

Martha's Vineyard Regional High School

January 22, 2020
Rev. 9.23.20

LIST OF DRAWINGS:

CP-1 OVERALL CAMPUS PLAN
EX-1 EXISTING CONDITIONS PLAN
EX-2 EXISTING CONDITIONS PLAN
SP-1 SITE PREPARATION PLAN
SP-2 SITE PREPARATION DETAILS
L-1 LAYOUT & MATERIALS PLAN
L-2 GRADING & DRAINAGE PLAN
L-3.0 LANDSCAPE PLAN & ENLARGEMENTS
L-3.1 LANDSCAPE DETAILS
L-3.2 STORMWATER DETAILS
L-4 TRACK & FIELD CONSTRUCTION DETAILS
L-5 TRACK & FIELD CONSTRUCTION DETAILS
L-6 TRACK & FIELD CONSTRUCTION DETAILS
L-7 TRACK & FIELD CONSTRUCTION DETAILS
L-8 TRACK & FIELD CONSTRUCTION DETAILS
L-9 TRACK & FIELD CONSTRUCTION DETAILS
L-10 GRANDSTAND PLANS & DETAILS
L-11.0 ENLARGEMENT PLAN - FIELD HOUSE
L-11.1 ENLARGEMENT PLAN - ENTRY PLAZA
L-12 LAYOUT & MATERIALS PLAN (Field #2)
L-13 GRADING & DRAINAGE PLAN (Field #2)
A100 FIELDHOUSE FLOOR PLANS
A200 FIELDHOUSE ELEVATIONS
E000 ELECTRICAL LEGEND & DETAILS
E001 ELECTRICAL DETAILS
E101 ELECTRICAL SITE PLAN

LOCUS PLAN

PROJECT TEAM

LANDSCAPE ARCHITECT:
Huntress Associates, Inc.
17 Tewksbury Street
Andover, Massachusetts 01810
978.470.8882

CIVIL ENGINEER
Marchionda & Associates
62 Montvale Avenue
Stoneham, Massachusetts 02180

ARCHITECT
Joseph D. Lagrasse & Associates, Inc.
One Elm Square
Andover, Massachusetts 01810

ELECTRICAL ENGINEER
BAIA Consulting
65 Temple Place
Boston, Massachusetts 02111

AEDALUS
OWNEE'S PROJECT MANAGER
CHA / Daedalus Projects, Inc.
1 Faneuil Hall Marketplace - Suite 4190
Boston, Massachusetts 02110
Martha’s Vineyard Regional High School
Athletic Field Plans & Details
Martha's Vineyard Regional High School
Athletic Field Plans & Details
Sports Lighting

1. New four (4) Pole System
2. LED Fixtures are 40% more efficient than existing.
3. Better Spill & Glare Control
4. Includes track lighting for walking & public safety.
5. 12 month programming.
6. On/Off controlled by phone.
7. 25 year Warranty.
8. Complete re-lamp at end of 25 year warranty cycle.

**Martha’s Vineyard Regional High School**
**Athletic Field Plans & Details**
Grandstand Details

Martha's Vineyard Regional High School
Athletic Field Plans & Details
Field House Floor Plans & Elevations

Martha’s Vineyard Regional High School
Athletic Field Plans & Details
Grading & Drainage Plan – Field #2

Martha’s Vineyard Regional High School
Athletic Field Plans & Details
Pedestrian & Vehicular Improvements

1. Remove 75 head-in parking spaces along Sanderson Road

2. Construct new dedicated parking area with 82 spaces east of the existing track & field.

3. Create a pedestrian corridor running north & south parallel to Sanderson Road.

4. Provide a physical separation between the roadway and pedestrian corridor.

5. Provide crosswalks at appropriate locations

6. Provide ADA (Handicapped Access) compliance throughout campus.
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Martha’s Vineyard Regional High School
Athletic Field Plans & Details
Martha’s Vineyard Regional High School

Athletic Field Improvements – Phase One

Highlights of Peer Review, OBPB & MVC Staff suggestions that have resulted in modifications the project plans:

OBPB & MVC Staff comments resulted in the following modifications:
1. Balanced earthwork cut & fill throughout the site.
2. Eliminated any tree clearing along Edgartown-Vineyard Haven Road.
3. Increased landscape and plant material, particularly along Edgartown-Vineyard Haven Road.
4. Modified plant list to only include native species.
5. Improvements to pedestrian circulation & parking throughout the site.
6. Reduced the size of the grandstand to match available island waste management resources.

HW Peer Review comments resulting in the following modifications:
1. Added bioretention cells (rain gardens) to reduce nitrogen impacts throughout the site.
2. Provided stormwater sampling locations within proposed drainage system.
3. Introduced a filtering system to minimize the possibility of microplastics moving into the groundwater.
4. Expanded limits of erosion control & tree protection throughout the site.
5. Reviewing educational opportunities tied to stormwater management, bioretention and native plantings included in the project.
Discussion Topics – Questions we have had to date

1. Short-Term & Long-Term Costs

2. Synthetic Turf Field Recycling

3. Ground Water Protection

4. Player Safety: Synthetic Turf and Natural Grass

5. Field House, Wastewater & Grandstands.
Discussion Topics – Questions we have had to date

1. **Short-Term & Long-Term Costs**

   1. **What are the Phase One Estimated Construction Costs?**
      1. Phase-One Construction Cost are estimated to be $7,729,928.00
      2. Construction Costs will be paid through private donations and not publicly funded.

   2. **What are the estimated annual maintenance costs for a Synthetic Turf and Natural Grass surface?**
      1. The estimated annual costs to maintain one synthetic turf surface is $7,454.28
      2. The estimated annual costs to maintain one natural grass field is $25,084.58

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Hours</th>
<th>Cost/hour</th>
<th>Product Cost</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYNTHETIC TURF FIELD - ESTIMATED ANNUAL MAINTENANCE COSTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Grooming &amp; Sweeping (16 time @ 2.25 hours ea)</td>
<td>36</td>
<td>$42.39</td>
<td>$0.00</td>
<td>$1,526.04</td>
</tr>
<tr>
<td>Topdressing and leveling Infill</td>
<td>16</td>
<td>$42.39</td>
<td>$1,000.00</td>
<td>$1,678.24</td>
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<tr>
<td>Seam repair and warranty issues (no charge for the first eight years)</td>
<td>-</td>
<td>$0.00</td>
<td>$500.00</td>
<td>$500.00</td>
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<tr>
<td>Gmax Impact Testing (one time annually)</td>
<td>-</td>
<td>$0.00</td>
<td>$1,250.00</td>
<td>$1,250.00</td>
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<tr>
<td>Deep Tine Cleaning (two times annually)</td>
<td>-</td>
<td>$0.00</td>
<td>$2,500.00</td>
<td>$2,500.00</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>52</td>
<td>$42.39</td>
<td>$5,250.00</td>
<td><strong>$7,454.28</strong></td>
</tr>
</tbody>
</table>

* Based upon actual employee cost/hour provided by MVRHS.
Discussion Topics – Questions we have had to date

1. Short-Term & Long-Term Costs

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   1. The estimated annual costs to maintain one synthetic turf surface is $7,454.28
   2. The estimated annual costs to maintain one natural grass field is $25,084.58

3. STMA: “Annual Input of $20,000 to $30,000 per field can go a long way in the maintenance and performance of a natural grass field.” (https://www.stma.org/natural-grass-athletic-fields/)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Hours</th>
<th>Cost/hour</th>
<th>Product Cost</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mowing &amp; Trimming (28 cuttings @ 2.25 hours ea)</td>
<td>63</td>
<td>$42.39</td>
<td>$0.00</td>
<td>$2,670.57</td>
</tr>
<tr>
<td>Aeration, 5 times per year</td>
<td>40</td>
<td>$42.39</td>
<td>$0.00</td>
<td>$1,695.60</td>
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<tr>
<td>Fertilizer @ 3.0#s N / Year</td>
<td>12</td>
<td>$42.39</td>
<td>$2,295.00</td>
<td>$2,803.68</td>
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<tr>
<td>Soil Amendments</td>
<td>3</td>
<td>$42.39</td>
<td>$551.04</td>
<td>$678.21</td>
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<tr>
<td>Herbicide Applications</td>
<td>3</td>
<td>$42.39</td>
<td>$45.32</td>
<td>$172.49</td>
</tr>
<tr>
<td>Pre-emergent</td>
<td>3</td>
<td>$42.39</td>
<td>$158.65</td>
<td>$285.82</td>
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<tr>
<td>Weed Control - spot spray</td>
<td>3</td>
<td>$42.39</td>
<td>$40.00</td>
<td>$167.17</td>
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<tr>
<td>Game Day Prep - Soccer (1.5 hours x 6 games)</td>
<td>9</td>
<td>$42.39</td>
<td>$500.00</td>
<td>$881.51</td>
</tr>
<tr>
<td>Game Day Prep - Football (2.5 hours x 6 games)</td>
<td>15</td>
<td>$42.39</td>
<td>$750.00</td>
<td>$1,385.85</td>
</tr>
<tr>
<td>Weekly Practice Prep - All Sports (6.0 hours x 28 weeks)</td>
<td>168</td>
<td>$42.39</td>
<td>$500.00</td>
<td>$7,621.52</td>
</tr>
<tr>
<td>Overseeding</td>
<td>30</td>
<td>$42.39</td>
<td>$1,710.00</td>
<td>$2,981.70</td>
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<tr>
<td>Insecticide Applications</td>
<td>8</td>
<td>$42.39</td>
<td>$623.10</td>
<td>$982.22</td>
</tr>
<tr>
<td>Irrigation (Operation &amp; Repair)</td>
<td>8</td>
<td>$42.39</td>
<td>$1,500.00</td>
<td>$1,839.12</td>
</tr>
<tr>
<td>Verti-drain Decompaction</td>
<td>8</td>
<td>$42.39</td>
<td>$600.00</td>
<td>$939.12</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>373</td>
<td>$42.39</td>
<td>$9,273.11</td>
<td>$25,084.58</td>
</tr>
</tbody>
</table>

* Based upon actual employee cost/hour provided by MVRHS.

Martha’s Vineyard Regional High School
MVC – Land Use Planning Committee
Discussion Topics – Questions we have had to date

1. Short-Term & Long-Term Costs

3. What is the anticipated cost per hour of use on both synthetic and natural grass surfaces?

1. A Synthetic Turf field at MVRHS is estimated to receive 1805 hours of use per year.
2. A Natural Grass field at MVRHS is estimated to receive 511 hours of use per year

<table>
<thead>
<tr>
<th>MVRHS - Proposed Athletic Field Use Analysis</th>
<th>Annual Events</th>
<th>Hours/Event</th>
<th>Total Use Hours</th>
<th>Number of Fields</th>
<th>Annual Hours/Field</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing Conditions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Sports, Youth Sports &amp; Summer Camps</td>
<td>1,404</td>
<td>2.5</td>
<td>3510</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Physical Education Classes</td>
<td>340</td>
<td>1</td>
<td>340</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Average Existing Use (per field)</strong></td>
<td></td>
<td></td>
<td>3850</td>
<td>5</td>
<td>770</td>
</tr>
<tr>
<td><strong>Phase One - Proposed Field Improvements (All Natural Grass)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Sports, Youth Sports &amp; Summer Camps</td>
<td>1,404</td>
<td>2.5</td>
<td>3510</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Physical Education Classes</td>
<td>340</td>
<td>1</td>
<td>340</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Phase One Use - Five (5) Natural Grass Fields</strong></td>
<td></td>
<td></td>
<td>3850</td>
<td>5</td>
<td>770</td>
</tr>
<tr>
<td><strong>Master Plan Alternative - Use of Synthetic Turf</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phase One - Stadium Field - One (1) Synthetic Turf Field</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Sports, Youth Sports &amp; Summer Camps</td>
<td>586</td>
<td>2.5</td>
<td>1465</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Physical Education Classes</td>
<td>340</td>
<td>1</td>
<td>340</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Phase One Use - One (1) Synthetic Turf Field</strong></td>
<td></td>
<td></td>
<td>1805</td>
<td>1</td>
<td>1805</td>
</tr>
<tr>
<td><strong>Total Phase One Use - Four (4) Natural Grass Fields</strong></td>
<td></td>
<td></td>
<td>2045</td>
<td>4</td>
<td>511</td>
</tr>
</tbody>
</table>

* Does NOT include 848 annual events associated with MV United, and 84 annual events associated with adult leagues.
1. **Short-Term & Long-Term Costs**

What is the anticipated cost per hour of use on both synthetic and natural grass surfaces?

<table>
<thead>
<tr>
<th>SURFACE</th>
<th>Years 1-10</th>
<th>Years 11-20</th>
<th>Total Hours</th>
<th>20 Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Natural Grass:</td>
<td>$105.36/Hr.</td>
<td>$78.44/Hr.</td>
<td>10,220 Hrs.</td>
<td>$91.90/Hr.</td>
</tr>
<tr>
<td>2. Synthetic Turf</td>
<td>$ 62.44/Hr.</td>
<td>$36.20/Hr.</td>
<td>36,100 Hrs.</td>
<td>$49.32/Hr.</td>
</tr>
</tbody>
</table>

How can shifting hours from natural grass to synthetic turf provide a benefit to all fields at the MVRHS campus?

1. A synthetic turf field can handle the use of up to three (3) natural grass fields.

2. Shifting the early spring sports, such as Lacrosse, to synthetic turf help to keep all your natural grass fields in better shape for the balance of the spring and fall seasons.

3. Lacrosse starts in March
4. Turf may be green, but roots remain frozen
5. Grass is torn from roots by quick start & stop
6. April brings rain and wet field conditions
7. Field are unlikely to recover for use in the Fall season. Extreme wear in high use areas.
Discussion Topics – Questions we have had to date

1. Short-Term & Long-Term Costs

2. Synthetic Turf Field Recycling

3. Ground Water Protection

4. Player Safety: Synthetic Turf and Natural Grass

5. Field House, Wastewater & Grandstands.
GOAL: To develop a sustainable synthetic turf specification which addresses concerns related to human health, player safety, heat, water quality, and recycling at the end of life.

Objective #1: Specify a product that eliminates the polyurethane coatings and heavy backing from the synthetic turf carpet.

Objective #2: Identify an alternative infill that is sustainably harvested, containing no heavy metals, PAH, VOC or other chemically based ingredients.

Objective #3: Identify a resilient shock pad which is cradle-to-cradle certified, reduces the reliance on infill, and improves player safety and shock attenuation.

Objective #4: Draft a specification that requires end of life recycling, including chain of custody certification for all products.

Discussion Topics – Questions we have had to date

2. Synthetic Turf Field Recycling

1. How is this product different from typical synthetic turf products?
Discussion Topics – Questions we have had to date

2. Synthetic Turf Field Recycling

Objective #1:
Specify a product that eliminates the polyurethane coatings and heavy backing from the synthetic turf carpet.

The best way to install a sustainable synthetic turf field is to think about recycling before the project is built.

Greenfields USA IronTurf Ultra Green synthetic turf is unique in that it is recyclable and can achieve a cradle-to-cradle certification. The woven turf eliminates the need for heavy backing materials and polyurethane coating and is made of components that can be re-pelletized and put back into the production stream to create the fibers for new synthetic turf fields.

Joe Fields, President of Tencate America confirmed Tencate’s commitment to recycle the field at MVRHS in a letter to Adam Turner dated February 4, 2020 and again on October 15, 2020.
Objective #1:
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Discussion Topics – Questions we have had to date

2. Synthetic Turf Field Recycling

Objective #2: Identify an alternative infill that is sustainably harvested, containing no heavy metals, PAH, VOC or other chemically based ingredients.

1. BrockFill is sustainably grown and harvested in the USA
2. 100% recyclable at the end of the life.
3. Eliminates crumb rubber, including concerns related to heavy metals, PAH & VOC’s.
4. Reduces heat from a typical synthetic turf field by 33 degrees.
Discussion Topics – Questions we have had to date

2. Synthetic Turf Field Recycling

Objective #2: Identify an alternative infill that is sustainably harvested, containing no heavy metals, PAH, VOC or other chemically based ingredients.

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Discussion Topics – Questions we have had to date

2. Synthetic Turf Field Recycling

Objective #3: Identify a resilient shock pad which is cradle-to-cradle certified, reduces the reliance on infill, and improves player safety and shock attenuation.

HEAD INJURIES ARE A SERIOUS SUBJECT.

20%
1 IN 5 CONCUSSIONS IN THE USA ARE A RESULT OF HEAD TO SURFACE IMPACT.

23-50%
REDUCTION IN THE RELATIVE RISK OF COMMON HEAD INJURIES FROM THE PLAYING SURFACE.

Brock Powerbase YSR Resilient Pad
Cradle-to-Cradle Certified
25 Year Warranty
2. Synthetic Turf Field Recycling

Objective #3: Identify a resilient shock pad which is cradle-to-cradle certified, reduces the reliance on infill, and improves player safety and shock attenuation.

Brock Powerbase YSR Resilient Pad
Cradle-to-Cradle Certified
25 Year Warranty

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Objective #4: Draft a specification that requires end of life recycling, including chain of custody certification for all products.

PART 4 – REMOVAL & RECYCLING *

4.01 GENERAL

A. The Synthetic Turf System Vendor shall be responsible to remove, reclaim and recycle the synthetic turf system at the end of its useful life at no additional cost to the owner.

B. The Synthetic Turf System Vendor must provide documentation outlining their product lifetime recycle / reuse program. All material must be able to be cradle-to-cradle certified and demonstrate 100% closed loop recyclability, recycling for energy not acceptable.

C. Prior to final acceptance of the synthetic turf field, the Synthetic Turf System Vendor shall set up an Escrow-Secured Guarantee by placing $50,000 into an Escrow Account at an FDIC insured institution, the account to be held jointly by the Owner and the Synthetic Turf Manufacturer-Installer. All funds in the account shall be released by the Owner to the Manufacturer-Installer (at the recommendation of the Architect) upon the successful recycling of the turf at the end of its useful life, per the provisions outlined herein. Should the Manufacturer be unable for any reason to recycle the turf field as per the provisions of the specifications, the Owner shall be entitled to the funds, including interest, for the purpose or recycling the turf properly by other means and other parties.

D. Synthetic Turf Vendor will maintain chain-of-custody, including the following information…..

E. Issuance of Certificate of Compliance Once synthetic turf has been received and processed, a Certificate of Compliance will be issued with reference to job name, site location, date turf products left the site, serial number of container, date received at plant and date processed into post-consumer products. Synthetic Turf System Vendor will be responsible for confirming 100% of the synthetic turf was recycled into post-consumer products.

* Complete Synthetic Turf Sports Surfacing specification provided to the MVC on July 28, 2020.
Discussion Topics – Questions we have had to date

1. Short-Term & Long-Term Costs

2. Synthetic Turf Field Recycling

3. **Ground Water Protection**

4. Player Safety: Synthetic Turf and Natural Grass

5. Field House, Wastewater & Grandstands.
Discussion Topics – Questions we have had to date

3. Ground Water Protection

1. How do we ensure that the synthetic turf system does not impact the groundwater & local aquifers?

1. MVPS agrees that we should guarantee the safety of our groundwater.

2. We have continued to work with the MVC to require testing of proposed products to ensure that harmful chemicals, including PFAS, PFOS, heavy metals, PAH and other volatile compounds and contaminants are not included in the project. We continue to recommend testing that exceeds the standards required by Massachusetts Department of Environmental Protection (MA DEP).

3. At our recommendation, MVC has engaged an independent third-party environmental consultant (Cooperstown Environmental) who will be overseeing the testing of turf products, including the resilient pad, synthetic turf and infill. The tests will also include any adhesives or fire retardants used in the manufacturing process.

4. The project specifications, Section 38 13 23.29 Synthetic Field Sports Surfacing*, includes the following requirements:

“The synthetic turf vendor shall provide a statement certifying their products and manufacturing processes, including upstream suppliers, do not use any PFAS chemicals currently listed as part of California's Proposition 65 regulations or identified as part of US EPA's Method 537 to manufacture the components of its turf field products, including the fibers, backing and any coating materials. This certification must be confirmed through independent, third party laboratory testing of the specified product.”

*Synthetic turf Sports Surfacing specification provided to the MVC on July 28, 2020.
3. **Ground Water Protection**

2. **How do we monitor groundwater quality after construction?**

1. We recommend the installation of two (2) ground water monitoring wells at the MVRHS campus. One monitoring well should be located in each of the Lagoon Pond and Sengekontacket Watersheds.

2. Background water sampling should be conducted prior to construction to determine the quality of existing groundwater on site.

3. Post-construction, annual sampling should be conducted to continue to monitor the quality of on-site groundwater. This effort will provide both a regulatory and education benefit as the MVPS can introduce students to the science that goes into groundwater sampling, analysis and documentation.
Discussion Topics – Questions we have had to date

3. Ground Water Protection

3. How can we reduce the use of nitrogen in both the Lagoon Pond & Sengekontacket watersheds?

1. The introduction of one Synthetic Turf Multi-purpose field has the impact of removing 264 lbs of nitrogen and 1036 lbs of fertilizer from the High School property annually.

2. The use of one (1) Synthetic Turf Field will also have the added benefit of reducing irrigation demand at the High School by approximately 1.18 million gallons of water annually.

<table>
<thead>
<tr>
<th>MVRHS - Athletic Field Fertilization Rates &amp; Water Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MVRHS - Athletic Field</strong></td>
</tr>
<tr>
<td>Multi-purpose Synthetic Turf Field (One Field)</td>
</tr>
<tr>
<td><strong>Fertilizer Rates (If Natural Grass)</strong></td>
</tr>
<tr>
<td>Early Spring (April 15 - June 1)</td>
</tr>
<tr>
<td>Late Spring (May 15 - June 15)</td>
</tr>
<tr>
<td>Late Summer (August 25 - September 20)</td>
</tr>
<tr>
<td>Fall (October 15 - November 15)</td>
</tr>
<tr>
<td>Annual Total</td>
</tr>
</tbody>
</table>

** Conforms to the MVC/OB Fertilizer Regulations

** N-P-K value could change based upon actual soil test results. Refer to annual maintenance plan for details.

<table>
<thead>
<tr>
<th>Water Usage Analysis (If Natural Grass)***</th>
<th>Field Size (sf)</th>
<th>H2O/week</th>
<th>H2O gal/sf</th>
<th>H2O gal/week</th>
<th>H2O gal/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-purpose Synthetic Turf Field (One Field)</td>
<td>105,252</td>
<td>1.0 Inch</td>
<td>0.623</td>
<td>65,572</td>
<td>1,180,295.93</td>
</tr>
</tbody>
</table>

*** Assummes 18 weeks of watering

The above chart was provided by Huntress Associates, Inc. in our peer review response dated September 28, 2020.
Discussion Topics – Questions we have had to date

1. Short-Term & Long-Term Costs

2. Synthetic Turf Field Recycling

3. Ground Water Protection

4. Player Safety: Synthetic Turf and Natural Grass

5. Field House, Wastewater & Grandstands.
Discussion Topics – Questions we have had to date

4. Player Safety: Synthetic Turf and Natural Grass

1. Are there more head and knee injuries with artificial turf than natural turf?

During our staff review with the MVC we provided the following link to the Penn State Center for Sports Surfaces where you can find 51 independent studies regarding player safety.

https://plantscience.psu.edu/research/centers/ssrc/research/synthetic-turf-injuries

As you will find, there are studies with varying results depending on the sport, surface, weight of the athlete, shoes, infill, age, level of play, sex, etc. I have never seen a natural grass multi-purpose public high school field that I would consider as safe as the field we have designed for Martha's Vineyard Regional High School.

The safety features built into your field include:

1. Resilient shock pad
2. Natural infill
3. Woven synthetic turf surface.
4. GMAX guarantee to never be above 125*
5. Critical fall height of 1.8m on a Head Impact Criterion (HIC) Test*

* Both of those results mirror that to be found in the best natural grass fields.
Discussion Topics – Questions we have had to date

4. Player Safety: Synthetic Turf and Natural Grass

1. How should MVRHS address concerns related to COVID-19 and overall cleanliness?

1. Disinfectant plans for youth sports, school and recreational facilities should follow the recommended guidelines established by the Center for Disease Control (CDC).

2. According to the CDC website “There is little evidence that large-scale use (e.g., spraying or fogging rooms or surfaces) of disinfectants will prevent...infections more effectively than a more targeted approach of cleaning frequently-touched surfaces.”

3. The CDC goes further by also recommending that schools “prioritize outdoor, as opposed to indoor, practice and play as much as possible.”

4. Should further field cleaning be necessary for blood, or other contaminants, we recommend that Isopropyl Alcohol (Rubbing Alcohol) be applied by hand to limited areas, as necessary. Isopropyl alcohol kills 99.9% of germs, including Covid-19, and typically evaporates within 60 seconds of application in an outdoor environment.

5. This policy has been shared with Greenfields USA and they have no objection to the MVRHS providing care as noted above.
4. Player Safety: Synthetic Turf and Natural Grass

3. Do our coaches and athletic trainers at MVRHS have a preference?
   Individual letters of support have been submitted by hundreds of island residents, including your own High School Coaches and Athletic Trainers who have worked with your athletes and reviewed the proposed improvements.
   [List of coaches and athletic trainers]

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Martha’s Vineyard Regional High School
MVC – Land Use Planning Committee
Discussion Topics – Questions we have had to date

1. Short-Term & Long-Term Costs

2. Synthetic Turf Field Recycling

3. Ground Water Protection

4. Player Safety: Synthetic Turf and Natural Grass

5. Field House, Wastewater & Grandstands.
Discussion Topics – Questions we have had to date

5. Field House, Wastewater & Grandstands.

1. **Is the proposed Field House part of Phase-One?** The propose Field House remains an important part of the project. However, due to the cost of effluent pumping the applicant has elected not to construct the building until such time as it can be serviced by an approved wastewater connection. We would respectfully request that the MVC continue to review the architectural details of the building as part of this application and include a condition in any DRI approval that requires a connection to the municipal system, or other such system as approved by the Oak Bluffs Board of Health, prior to issuance of a building permit for the Field House.

2. **How will wastewater be handled?** The Field House will be serviced by a connection to the municipal service, or other such system as approved by the Oak Bluffs Board of Health, prior to the issuance of a building permit.

3. **How many seats are included in the proposed grandstand?** The proposed grandstand seating has been reduced from 1020 seats in the original proposal to 704 seats in the current plans.
Martha’s Vineyard Regional High School

Athletic Field Improvements

Thank You