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February 19, 2016

Mr. Richard Harris
Town Planner
Town of South Hadley
116 Main Street
South Hadley, MA 01075

RE: Addendum to the Stormwater Management Report
South Hadley High School – Athletic Campus Improvements
Gale JN 717000

Dear Mr. Harris:

Gale Associates, Inc. (Gale), on behalf of its client, Town of South Hadley (Town), hereby submits this letter response to serve as an Addendum to the Stormwater Management Report, dated January 28, 2016, regarding the athletic campus improvements project proposed at the South Hadley High School. This addendum specifically addresses how the proposed project has been designed to meet Sections 16-1, 16-6, and 16-7 of the Town's Stormwater Management Bylaw standards.

The following are Gale's responses to meet the criteria for review per Section 16-4 of Town's Stormwater Management Bylaw standards:

A. The Stormwater Management and Erosion and Sediment Control Plan are consistent with the Purposes and Objectives of this Bylaw in Section 16-1:

As was described within the Stormwater Management Report, the project consists of converting the existing natural grass game field to a synthetic turf field. The project as designed will not have any adverse impacts associated with stormwater runoff pre- and post- construction and site development.

The proposed management of stormwater runoff will meet the following ten objectives by:

1. Adverse water quality impacts of stormwater discharges will be reduced due to the runoff from the synthetic turf field and related walkways not being subject to pollutants associated with vehicular loads, sanding, sediment, etc. Also, the installation of synthetic turf will result in the elimination of fertilizers, pesticides, herbicides or any other chemical application related to

the maintenance of a natural turf that could increase pollutant and nutrient loading.

2. The project will not have an increase in pollutants discharged into stormwater runoff. In fact, as was described in objective 1 above, the post-development conditions will result in a reduction in pollutants.
3. As was described within the Stormwater Management Report, a synthetic turf field drains stormwater runoff vertically, as opposed to a natural turf field, which tends to sheet flow runoff. The proposed synthetic turf field will be designed with an engineered stone base (33% voids) and be drained via flat panel drains perforated collector pipes in stone trenches. The time required for stormwater to travel through the stone base and fill the voids, before reaching the underdrain system, will enable the synthetic turf field to release stormwater at a controlled rate and provide storage to attenuate flows and promote additional water quality treatment and maximize recharge opportunities.
4. The project as designed will reduce runoff under the post-development conditions and therefore prevent erosion and sedimentation from runoff associated with this project.
5. As was described in objective 3 above and in the Stormwater Management Report, the construction of a synthetic turf field will maximize the groundwater recharge opportunities for the project site under the post-development conditions.
6. The proposed stormwater facilities are associated with the stone base and drainage system underneath the synthetic turf, and will maintain the natural integrity of the environment and is designed to protect public safety.
7. As was stated within the Stormwater Management Report, the project will reduce the pre-development runoff characteristics after development.
8. The project as designed will minimize damage to public and private property from flooding.
9. An Operations and Management plan was included as part of the stormwater management report and provided guidelines for how the Town will maintain the stormwater management controls.
10. Construction site practices for waste materials and debris have been provided within the Operations and Maintenance plans. Additional control measures will be provided by the future Contractor when they submit a SWPPP with general permit.

B. Provisions for stormwater management meet Performance Standards described in Section 16-6:

The Bylaw's stormwater management performance standards will be met by the following:

1. **Minimum Control Requirements:** The Stormwater Management Report, submitted on January 28, 2016, demonstrates how the proposed project will meet or exceed the 10 Stormwater management Standards by MassDEP.
2. **Stormwater Management Measures:** As has been described above and within the Stormwater Management Report, the project utilizes the synthetic turf field's base stone and underdrain system as a BMP that will release stormwater at a controlled rate and provide storage to attenuate peak flows and promote additional water quality treatment and maximize recharge opportunities. There will be no pollutants typical with vehicular loading. Other pollutants, such as fertilizers, pesticides, herbicides or any other chemical application related to the maintenance of a natural turf that could increase pollutant and nutrient loading will now be eliminated by the synthetic turf field. The synthetic turf field will discharge overflows into the same existing site drainage system, the post-development runoff will be less than the pre-development runoff, and there will be no increase in flooding to downstream conditions.
3. **Specific Design Criteria:** The proposed synthetic turf field, as described above and within the Stormwater Management Report submitted January 28, 2016, will act as a BMP and meet the Bylaw's criteria as they relate to infiltration, detention and applicable stormwater design practices related to this project.

C. Provisions for erosion and sediment control meet the Design Requirements in Section 16-7:

The Bylaw's design requirements of the Erosion and Sediment Control Plan are met by the following:

- a) The total area of disturbance has been minimized to what work is needed to achieve proposed project.
- b) The proposed project has work in one general location, and as such simultaneous area of disturbance will be minimized.

- c) As is shown within the Stormwater Management Report, the project will reduce runoff rates under the post-development conditions.
- d) The proposed work will essentially involve a "flat" field and grading slopes will be minimized. Erosion and sediment control measures will also be installed.
- e) Contractor shall submit a SWPPP as required for general permit that will describe how control measures will be implemented to divert uncontaminated water from disturbed areas.
- f) Groundwater recharge will be maximized by the synthetic turf field, as described above and within the Stormwater Management Report.
- g) The project's submitted plans and Operations and Maintenance plan describes how the erosion and sediment control measures will be installed and maintained.
- h) The project's submitted plans and Operations and Maintenance plan describes how the off-site transport of sediment shall be prevented (stabilized control entrance, etc.)
- i) The project's submitted plans and Operations and Maintenance plan describes how the on- and off-site material storage areas shall be protected and managed.
- j) The Contractor shall submit a SWPPP under general permit that will demonstrated how the proposed work will comply with Federal, State and local requirements
- k) As was described within the Stormwater Management Report, the project is not within any wetlands buffer area, natural heritage areas, or any certified vernal pool areas.
- l) The Contractor shall institute interim and permanent stabilization measures per project plans and per SWPPP requirements.
- m) The Contractor shall manage on-site construction waste materials per Federal, State and local requirements.
- n) The project's submitted plans and Operations and Maintenance plan describes how the off-site vehicle tracking of sediments shall be prevented (stabilized control entrance, etc.)

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If you have any questions, or require any additional information, please do not hesitate to contact our office.

GALE ASSOCIATES, INC.



Peter Spanos, P.E., LEED AP
Project Manager

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